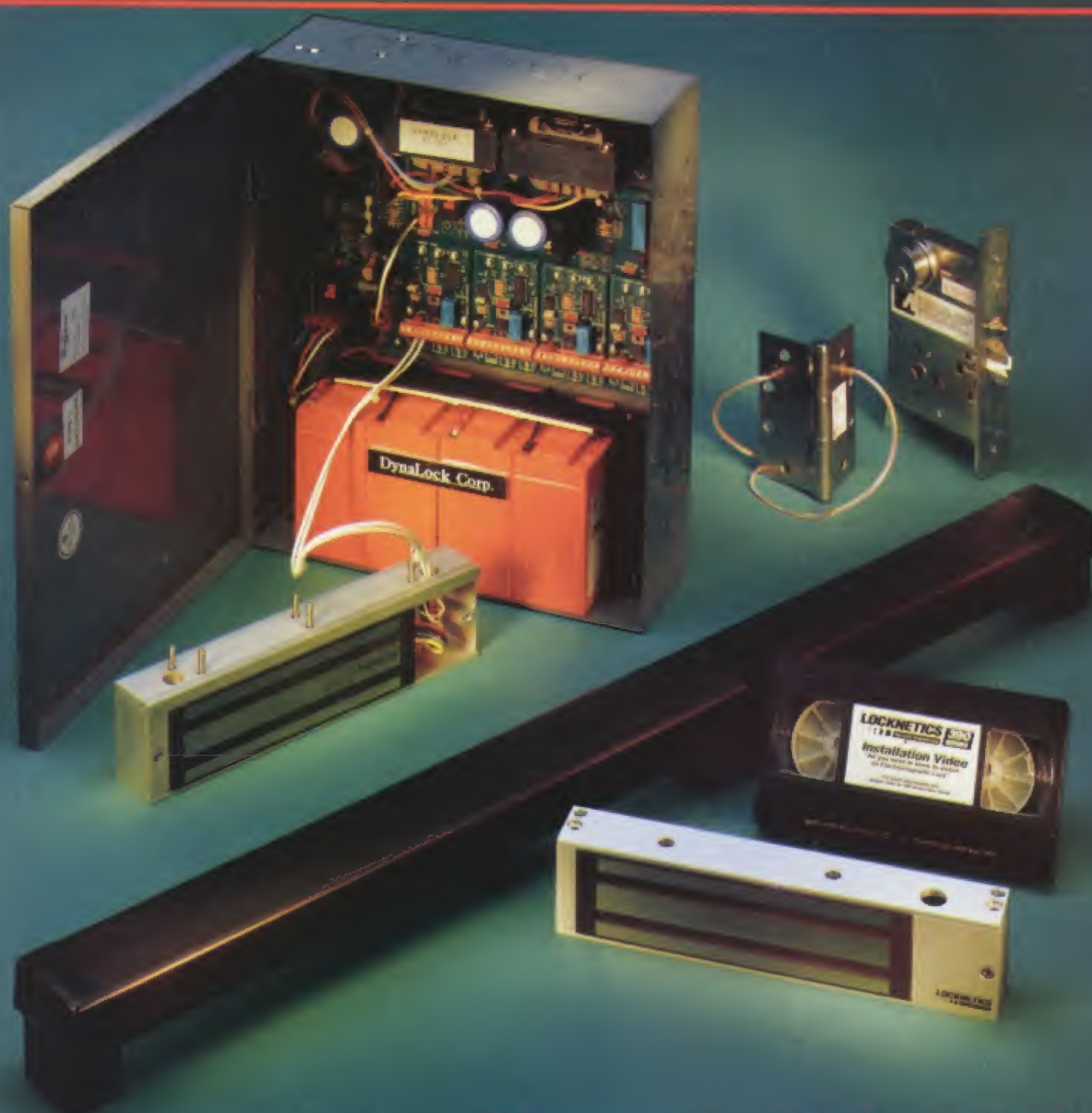


May 1991

The National Locksmith®



Electronic Locksmithing

The National Locksmith • May 1991 • Volume 62, Number 5

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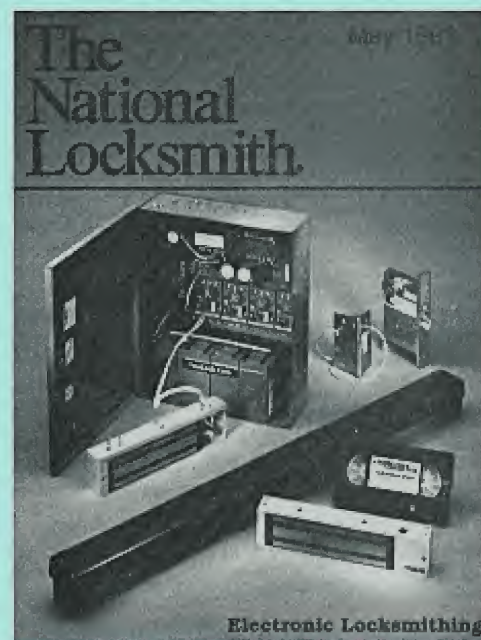
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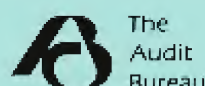
Products featured by (from top left): DynaLock Corp. (Power supply and magnetic lock); Architectural Control Systems (Hingemod and lock mod); Locknetics Security Engineering (Magnetic lock and instructional video); and Securitron (Touch Sense bar). For more information, turn to our product review section beginning on page 30.

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Managing Editor Sandy Kucharski
Circulation Manager Tracey Brady
Technical Editor Robert Sieveking
Technical Writers Carl Cloud, Eugene Gentry, E. Lee Griggs, Ed Hill, Dale Libby, Joseph Locke, Regis McCafferty, Dave McOmie, Rick Ohmit, Don O'Shall, Sara Probasco, Jack Roberts, Shirl Schamp
Advertising Sales Mgr. Thomas Miodoch
Advertising Sales Asst. Debbie Schartzing
Advisory Board Keith Levine, Mike Elsberry, Steve Dyson, Buddy Logan, Sean DeForrest



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Commentary

Secret Codes

Thanks to those of you who have sent in entries to the Photo and Funny Stories contests. We are sifting through the materials now, and we'll be printing the results in a month or so. Lots of you sent in photos and funny locksmith stories and we appreciate that. Remember, you still have until May 15th to send in your shop and vehicle photos.

I want to announce that a brand new book is available from *The National Locksmith*. The book is a safe manual by Dave McOmie and it compiles his safe articles together in one place. If you would like to have a copy of the last four year's worth of Dave's articles, plus some additional information not found anywhere else, this book is for you. Called *Safe Articles 1991*, the cost is \$23.95.

Recently I purchased an American made mini-van for my wife to drive. (We now have two children, Faye Nathanielle having been born on February 10th.) When the salesman gave me the keys, he also gave me a business card with the code number written on it.

"This is a *secret* code number," he said. "Only *this* dealership can decode it to make a key for you. Any time you lose your key, just call me, and you can pick up a new one for just one dollar."

"Gee, that's swell of you," I replied. "But do you suppose that a locksmith could make me a key if I am out of town when I lose my key?"

The salesman looked smug. "Nope," he shrugged. "We're the only ones who can use that code to make you a key. And if you lose your key when out of town, you have to call us and we can express you a key."

I thanked the salesman for the *secret* code. Then I informed him that his *secret* code is known to every locksmith in America, besides which it is stamped right on the lock.

"Yeah, well, um, er...it would be a lot more expensive to have a locksmith come out and make your key, now wouldn't it?" he said, jabbing his finger in the air.

I told him that I couldn't argue with him there. I just hope none of his customer's ever lose their keys when more than five miles from the dealership, or during non-business hours.

After all, that *secret* code wouldn't do them any good, now would it?

Competition comes to the locksmith from the least expected places sometimes. I guess we shouldn't be surprised to see car dealers jumping in on the act. Just be sure to remember this story next time a car dealer calls you for service work. (I know a number of locksmiths who have done work for dealers.) I suggest you charge your normal rates instead of offering the dealer a discount. After all, the dealer is taking away more business that he is giving.

What do you think?



Marc Goldberg
Editor/Publisher

May 5

Letters

Comments, Suggestions and Criticisms

The National Locksmith is interested in your view. We do reserve the right to edit for clarity and length. Please address your comments, praise, or criticism to Editor, The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107. All letters to the editor must be signed.

Abus Clarifies Technitip Information

Dear Marc:

This letter is in response to an article in your Technitips section of the March 1991 issue, regarding the Abus #80/45 padlock (page 20).

Just to set the record straight, replacement cylinders for both the #80/45 and 81/45 are available separately, and are priced out in our current "Rekeyable Parts Price List." These are available from most Abus distributors nationwide.

Len Stoia
Sales Manger
Abus Lock Co.

Editor's Note: Thanks, Len, for putting us on the right track.

Professional Locksmith Speaks Out

Dear Marc:

I have been reading your publication for the last four years now and every

month I find myself learning more and, more in the trade. However, this month's issue had a letter in it that bothered me greatly and I hope that this will be published for all my brothers/sisters in the trade.

The letter was titled "Locksmith Admonishes Car Opening Principles" by a gentleman named Mike Spencer of California, the February 1991 issue. Mike, why don't we take our blinders off now and start seeing life and "professionalism" in the context that we really should be.

First, just because you have decided to exit the locksmith profession after only five years hardly makes you qualified to judge that "all" locksmiths are being self-centered. Please don't be so gullible as to think there are not a lot of "self-centered" police officers and tow truck operators. When you decide to leave the law enforcement occupation are you going to slam police for their "lack of professionalism?"

For the majority of the law enforcement community they are on a salaried pay scale. Police don't need to worry about the time they take to open a car and in many cases to ruin a car's linkage system; they are going to get paid either way, and most of them don't take the responsibility if they do ruin the car.

Come on Mike, who do you think is paying these up-holders of the law? You

and I are in our state and local taxes. Please don't tell me that you don't think you pay enough in taxes. Your taxes aren't paying for the locksmith. The majority of the locksmiths in this country are true professionals and deserve the same respect as any other "professional" such as doctors, lawyers and the like.

Lee Paixao
Portugal

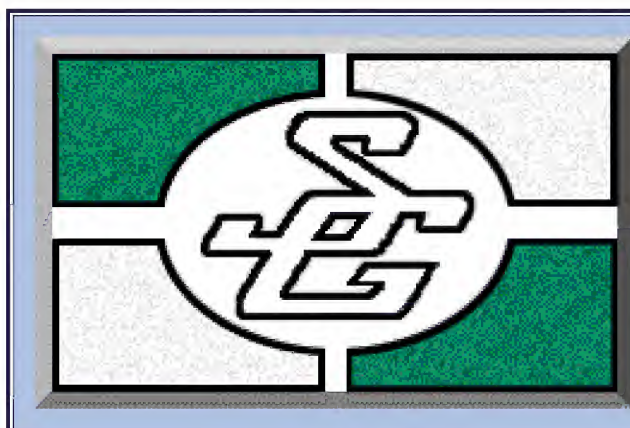
Wholesaler Seen As Locksmith's Competitor

Dear Marc:

I am a small one-man locksmith shop and work hard for what little income I earn. I would love to get a small contract with local governmental agencies and school districts to build up my business. But how can I do this when the wholesaler whom I buy from is my biggest competitor?

Recently, I had an opportunity to bid on three dozen sliding glass door locks for a local school district. I did not get the bid. It went to the wholesaler who sold the locks for \$1.50 less than he would have sold them to me. This is not the first time this has happened to me involving this particular wholesaler. It is also the reason I have not bought anything from him in the last three years. I go to the only other wholesaler

Continued on page 8



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Continued from page 6

on the other side of town and buy from him because it is their policy not to compete with locksmiths and they do not bid to people who could be potential customers of the locksmith.

I know the wholesaler I no longer buy from could care less that I'm no longer his customer, but what can be done to stop this practice of wholesalers being a locksmith's biggest competitor?

Gary C. Long
Minnesota

Editor's Note: Honestly, nothing can be done other than what you're already doing. But remember that some institutions have their own locksmith. How can it be wrong for a wholesaler to sell direct to an institutional locksmith? Best idea is to patronize wholesalers who treat you right.

Ex-Cop Comments On Police Opening Cars

Dear Marc:

I just had to write and voice my opinion on policemen handling non-emergency lockout calls. Prior to becoming a locksmith I was a policeman and I can assure you that "Real Policemen" hate to unlock car doors.

The policeman you see standing beside a lockout, drooling, Slim Jim at the ready, trying to impress Joe or Joan Q. Public with his magical free car opening, is usually the same policeman you read about who shoots himself in the foot while practicing his lightning fast draw. When he's not out stealing our business you can find him at the local diner mooching free meals and fantasizing about his next career as a wrecker drive.

The only way to stop him is to put pressure on his superiors. Write-em, phone-em, or go see them, but tell-em, tell-em, tell-em, and tell-em....to leave the lock work to Locksmiths and let Policemen be Policemen.

Ross Henderson
South Carolina

Reader Identifies With Sara Probasco's Tales

Dear Marc:

I'd love to be able to tell you just how much I enjoy the "Lighter Side" by Sara Probasco, but I'm not that articulate. So I will try this way. When some men get their "men's" magazines, first place they go is the centerfold and enjoy. Myself, my "men's" magazine consists of *The National Locksmith* and my first objective is locating the Lighter Side! I've been able to associate with a few of Sara's and Don's predicaments.

Living in very rural Nebraska, it's not uncommon to be called out to the "boonies" and the surprises that await. (No flash floods here.) Or the forgetful widow who brought in her husband's combined brief case and had me open it and reset it to our telephone exchange prefix.

A week later she returned needing it opened again (having forgot she'd already been in and what the combination was). I reopened it and reminded her of the phone prefix. (No charge of course.)

Forgive me please! I've wondered

Continued on page 86

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Technitips

Helpful Hints from Fellow Locksmiths



Send me your Technitips. Who knows, you may be our next winner! c/o The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107.

by Robert Sieveking

Congratulations to all those that find their Technitips printed here this month. There are some Tips here that shed new light on some old problems, and some Tips that indicate new problems. All show originality and a continuing effort to do good work. To some locksmiths, that have been in or around the trade for many years, a few of these Tips may be "old hat." The thing we sometimes forget, is that the new locksmiths don't have all that valuable experience, so closely guarded by the old timers. If you have some valuable knowledge or experience that applies to the locksmith trade or business, translate it into a Technitip and send it. The Prizes are tops in the industry. The level of your participation is an indicator of your dedication to

Win a VATS Decoder From All-Lock!

Each month, All-Lock will award one of their A-7000 VATS Decoders and an A-7001 Adaptor to the best automotive Technitip submitted this month. If you would like a chance to win a free decoder and adaptor from All-Lock, simply submit your automotive tip exclusively to *The National Locksmith*. Tips submitted to other publications cannot be considered.

All-Lock's A-7000 makes it easy to diagnose system failures, service the column and select the correct key blank. This sophisticated tool is easy to use and is completely portable. Long wire leads are easy to use in cramped automotive situations.

Submit your tip, and win today!



excellence in the trade. How many Technitips have you submitted? This year? Technitips is your column. I look forward to hearing from you.

May's Best Tip

Many brands of safes have their own special design characteristics. They also have their own unique types of problems and malfunctions. This Technitip concerns the small

Melink fire safes. I have found that a cause of lockouts in some cases can be a disconnected handle cam. These Melink units have a brass screw that connects the handle cam to the bolt works cam. This "break-away" feature allows the handle to disconnect from the boltworks in the event that someone should try to force the handle. After a number of

How To Enter

All you need to do to enter is submit a tip, covering any aspect of locksmithing to *The National Locksmith*. Certainly, you have a favorite way of doing things that you'd like to share with other locksmiths. Why not write it down and submit it to: Robert Sieveking, Technitips' Editor, *The National Locksmith*, 1533 Burgundy Parkway, Streamwood, IL 60107.

Tips submitted to other industry publications will **not** be eligible! So get busy and send in your tips today. You may win cash merchandise, or even one of many key machines or code book sets! At the end of the year, we choose the winners of the listed prizes.

Last year dozens of people walked off with money and prizes. Wouldn't you like to be one of the prize winners for 1991? Enter today! It's a lot easier than you think!

Every Tip Wins 'Locksmith Bucks!'

Yes, every tip published wins a prize. But remember, you must submit your tip to *The National Locksmith* exclusively. Each and every tip published in *Technitips* wins you \$25.00 in Locksmith Bucks! Use this spendable cash toward the purchase of any books or merchandise from *The National Locksmith*. You also receive a Bonded Locksmith bumper sticker and decal. Plus you are now eligible for the really big prizes!

Best Tip of the month prizes!

If your tip is chosen as the best tip of the month, you will win \$50.00 in cash as well as \$35.00 in Locksmith Bucks! Plus you will receive a quartz Locksmith watch, a Bonded Locksmith bumper sticker, decal and a Locksmith Cap. Plus, you may win one of the annual prizes.

years of rough use, the brass screw can shear, leaving the outside handle to spin around without withdrawing the door bolts. Even when the proper combination has been dialed, the safe remains locked. Putting angled pressure on the handle, tipping the safe on its side and upside down, and shocking the door with a deadblow hammer will not always allow the bolts to be worked back. This procedure works every time and will save you tipping the safe and pounding the door.

Dial the proper combination and assure yourself that the bolt is retracted. Measure 1-3/8" down from the center of the opening handle, and strike a line, level with the floor, to the opening side of the door and around the side of the safe. Measure 2-1/8" back from the front of the safe, along the line, and center punch for a small hole. This is the exact center of the side door bolt. There are three bolts in this door. One bolt extends from the side of the door, at the point we have located, and two bolts extend from the top and bottom of the door. Drill a 1/8" hole into the

safe at this point. Drill through the outside skin, fire proofing material, and the inside sheet metal bolt dust guard. Insert an ice pick into the hole and push the bolt back. If the safe is packed full of papers, you may have to press on the door to relieve the pressure on the door. When the side bolt is pushed back, the top and bottom bolts will be retracted.

Repair the sheared screw and plug the side hole in the safe. The side hole is easily repaired by using metal filler and a drop of paint. A 1/8" pop rivet could also be used to plug the hole. Unless the combination is known, the hole will not compromise the security of the safe.

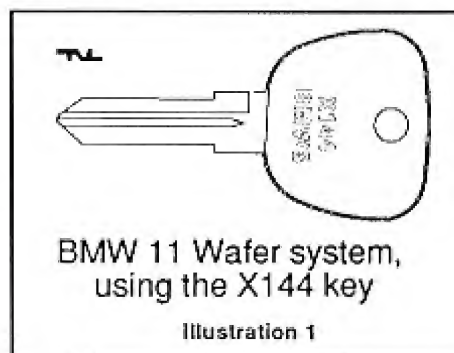
Jeff Sitar
New Jersey

Automotive Tip of the Month

This tip is the winner of the All-Lock A-7000 VATS Decoder and the A7001 Adapter. All-Lock will award this package to the best automotive tip each month of the year.

Here is a Technitip which I hope will be of interest to you. It has worked well for me on several occasions. It concerns

unlocking and making a first key for those BMW autos using the X144 key. Almost all models of the BMW from 1975 to '90 except the 735i and 750i will be found to use this key system. (See illustration 1.)



This car is extremely difficult to work on when the doors are "deadlocked." It is my opinion that it may be one of the most challenging jobs I have been asked to perform. Obviously, working with a code would be the ideal way to open or make a key for this auto. But, of course, this is seldom the case.

The passenger door has seven tumblers. The driver's door has all 11 (seven tumblers plus four that control the dead locking function). The trunk

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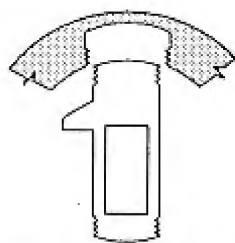
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Continued from page 12

has seven tumblers, and the ignition has only ten. All wafers (tumblers) are serrated, as you see in illustration two, which makes picking or impressing tough. Turning tension on the plug, will cause the serrated wafers to engage matching serrations in the wafer compartment, preventing the wafer from being manipulated by a pick. The coarseness of the serrations causes a wafer to stop marking as a key is being impressed, giving a false indication that the key has been filed to the correct depth. That is the theory, but with a little perseverance, these locks can be compromised. Serrated wafers serve the same function as mushroom pins in a pin tumbler cylinder.



Serrated wafers engage serrations in the wafer compartment.

Illustration 2

Start by picking the trunk cylinder to the open position. Impression a key to this lock if you cannot pick the cylinder. Disassemble the trunk lock to make a key, if the cylinder was picked. Be careful, as there are two "ball bearings" in the cylinder, that act as detents in the locked and unlocked positions. Remove the plug while holding the cylinder in a plastic bag to avoid losing them. Also, while removing the plug, be careful not to allow the wafers to fall out, since they are not staked into the plug. Make a working key, using depth keys or a code machine, for the seven known tumblers.

Use the seven cut key to open the passenger door. Turn the key clockwise, and while holding the cylinder turned, pull up on the handle. This door will open, but the door will remain locked. Now you have a choice. Either take the ignition lock out to find a code and make the remaining cuts in the partially completed key, or impression the last four deadlock cuts to give you a completed key.

If you find impressing too difficult on these locks, the following list of possible cuts may be useful. They were taken directly from the code series, and represent all the combinations used. There is never a #4

cut used in the last four positions of the key. There is never a #1 and #4 cut adjacent to each other in the codes. (This means that if the seventh cut was a #4, you could eliminate any combinations that would have a #1 cut in the eighth position.) Cuts in the last four positions will always total seven or nine.

Cut Combinations:

1123, 1213, 3321, 3121
1132, 1231, 1312, 3123
2131, 1233, 1321, 3132
2113, 3211, 1332, 3321
2133, 3213, 1323, 2311
3231, 3112, 2313, 3312

One last thing to mention, I didn't overlook picking the driver's door, but it is rough.

John Steiner
New York

Editor's Note: Learn to "read" wafer locks. Buy the book. It will greatly simplify making keys for these autos. Serrated wafers don't have a chance against reading. Impressing is dangerous with the BMW, especially the ignition. If you damage the ignition cylinder, the instrument cluster portion of the dash will have to be removed for

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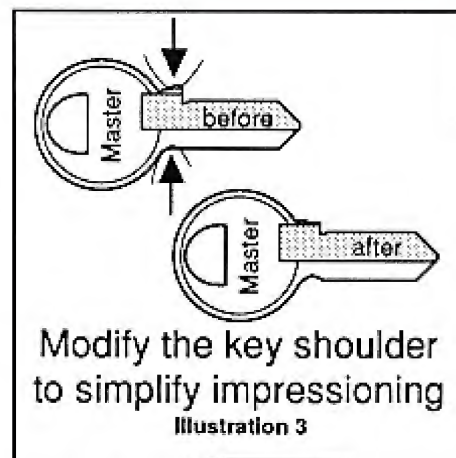
Continued from page 14

access to remove it. Why take the chance? Time lost, using any other method, destroys any possible profit. Also, consult your Hi Tech manual for an easy opening method.

This Technitip concerns the joys of impressioning the Master type padlock. If you've been having difficulty impressioning these small padlocks, here's a little Tip that may make a life a little easier for you.

Modify the key by filing away a

portion of the shoulder and a bit of the back of the key blade, as you see in illustration three. This will allow you to get better marks. Cylinders in these locks are relatively free. Movement of the cylinder allows the key to bump against the ridge around the cylinder hole in the bottom plate of the padlock. This restricts the up and down movement of the key in the "keyway" and prevents the key from marking. If you remove the portion of the key that is preventing the marks, the key can be made with a lot less effort. Practice this tip in the shop. You will be surprised at how much easier it makes



impressioning these padlocks.

John Mayo
Virginia

This Technitip concerns an extremely easy method of opening the rear deck of a '91 Chevrolet Caprice. I am a locksmith in the Philadelphia area. The other day I had a call to open the trunk of a '91 Chevy Caprice. The lock cylinder was working fine, but the linkage had become disconnected. Never having worked on this body style, I was a little apprehensive about what I might encounter. The solution turned out to be extremely simple, as you will see.

This Technitip is for the '91 Caprice, but it may work on other GM models which use this body style. The tag light can be easily reached through this large access hole. Whether it be for keys locked in the trunk, or as in my case for a disconnected linkage. This method makes short work of opening the trunk without damage to the lock or the deck lid. I hope this tip helps a fellow locksmith with a similar problem.

Joseph Hall
Pennsylvania

We all need a key tag, now and then, to note a room number, door, or car description which can be attached to a give away key ring. A simple solution to this need, which I have used, is to cut up old key boxes to make the tags. After emptying a key box, take the time to cut it into appropriate sized pieces. Punch a hole in one end with a paper punch or leather punch, and stick an address sticker on one side, as you see in illustration four. Hang the tags on a



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Newsmakers

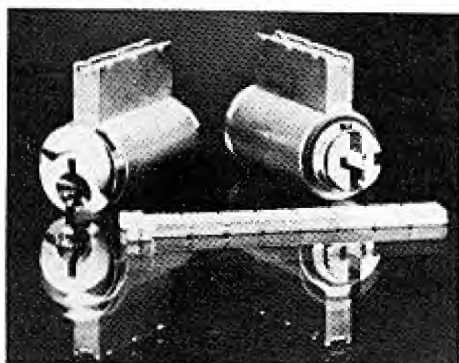
New Products and Industry News

AWI Introduces 8800 Series Cylinders

AWI, a division of Abloy Security, Inc., has announced the introduction of two new, key-in-knob lock cylinders.

The all new AWI 8800 series Convert-A-Lock cylinders are made of the finest materials available. The brass cylinders feature precise pin spacing and key-cut dimensions, which match those of original manufacturers, so that they can be used in existing master-key systems. Both are available in 20 popular keyways, as well as a variety of keying configurations.

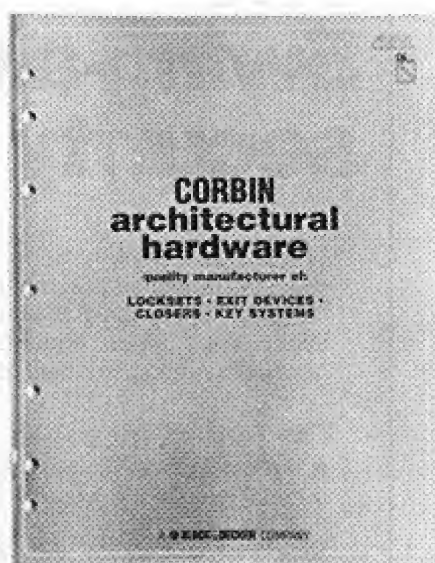
The Convert-A-Lock 8800 model is adaptable to the Schlage A, D and H series of locksets and the Arrow M, H, K and S series of locksets. The tailpiece is stationary and can be mounted either vertically or horizontally.



Circle 303 on Reply

Corbin Offers Full Product Brochure

Corbin Architectural Hardware, Berlin, CT., a Black & Decker Company, offers the new and revised 16-page Corbin Sweets Catalog that shows the complete Corbin Product Line of Builder's Hardware.



The mini catalog is designed to serve as a quick-reference guide to the following: Cylindrical, Unit, and Mortise Locksets, Door Control Devices, and Cross-Bar and Push Bar Exit Devices. Keys, Key Systems, Cylinders and Key Control Software Systems are also shown.

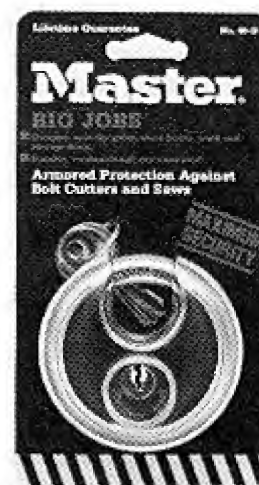
Circle 304 on Rapid Reply

New Shielded Locks From Master Lock

New shielded locks from Master Lock are especially designed to protect storage sheds, vending machines and other areas where maximum security is needed.

The disc-shaped, 2-3/4 inch-wide body and shrouded shackle help thwart thieves. The lock also features double-locking deadbolt action combined with a pin-tumbler locking mechanism to provide top security. Stainless steel construction helps prevent corrosion.

A retractable shackle makes it easy to operate and use the lock.



Circle 305 on Rapid Reply

Continued on page 21



*Don't panic!
We have Security
Exit Devices.*

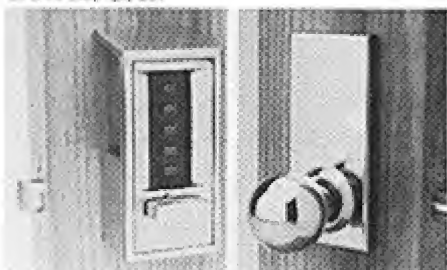
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Continued from page 18

Pushbutton Combination Lock For Residences

A completely mechanical pushbutton combination lock which has provided high security and convenience for industry for more than two decades is now available in contemporary styling for residential applications.

Called the Simplex Series 6000 Residential Lock, it operates without keys and is pickproof and weather resistant. It requires no electrical wiring or batteries and can be set with thousands of combinations. Any can be changed by the homeowner in less than a minute, without removing the lock from the door.



With the Simplex, there are no keys to be lost, stolen or have to be hidden. It relocks automatically, but there can be

no lockouts, since a key is not needed to regain entry.

The same or different combinations can be used on the Simplexes on front, rear and garage doors, as the homeowner desires. Ease of changing combinations gives householders a wide choice. Pushing the buttons of combinations of up to five numbers can be done even in the dark and the door can be opened with one hand.

Circle 306 on Rapid Reply

New Publication From Accredited Lock Supply

Accredited Lock Supply is pleased to announce the publication of their third annual Encyclopedia of Locksmith Supplies.

With 416 pages of locks, tools, safes, parts, etc., it is one of the largest and most complete catalogs in the business. All items are clearly illustrated and priced, showing the retail price and trade discount.

Included are order forms and credit applications in the back of the book. Orders can be called in, mailed in, or faxed.

Circle 307 on Rapid Reply

Stor-A-Key From Supra Products

Supra's Stor-A-Key now is packaged in colorful Visual Packs that are easily displayed, hanging or standing.

Available in two styles, Stor-A-Key is a convenient way to hide spare keys at home, work or storage sites. The versatile padlock mount Stor-A-Key can be mounted on doorknobs, recreational vehicles and fences, and can be moved easily from place to place. It is padded to ensure no surface damage.

Surface-mounted Stor-A-Key is easily mounted with four screws on a variety of surfaces, including homes, workshops, sheds and offices.



Circle 308 on Rapid Reply



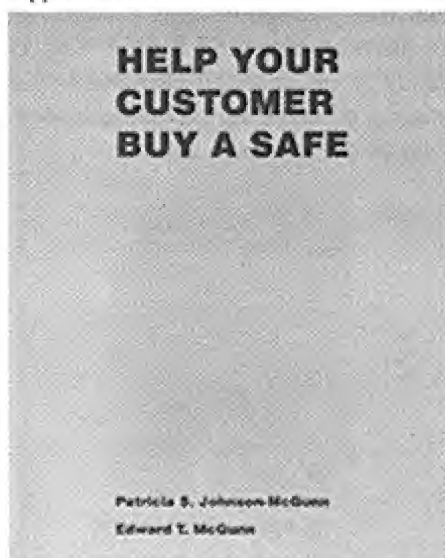
**To be a World Leader You Need Quality Products,
Innovative Technology and Strong Partners.**

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New Book Instructs How To Sell Safes

A valuable 16 page reference book, *Help Your Customer Buy A Safe*, is now available from the McGunn Safe Co.

Written in the interest of the salesperson and the customer, the book discusses customer problems and how to prescribe particular types of safes to solve them. It explains how to make a profit selling safes by simply recognizing and taking advantage of opportunities.



A partial list of the book's chapters includes Recognizing the Opportunity, Selecting the Appropriate Safe, Getting and Focusing the Customer's Attention, Handling Objections, and Closing the Sale.

Circle 309 on Rapid Reply

Designer Key Clip From Lucky Line

A smart, two-color jean ring made of durable plastic, the No. 420 Key Clip opens at the push of a button and closes with a push on the top or a pull on the key ring. Clip it to a belt loop, purse strap, or similar item.

The Key Clip measures 3" long and comes with a 7/8" split ring. Available 1, 24 or 36/skin card, it comes in blue, green, red, and yellow, with black casing.

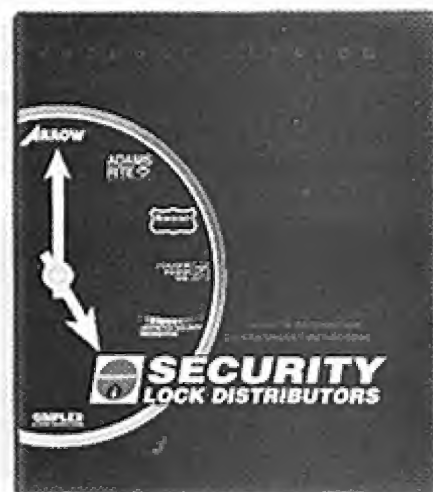


Circle 310 on Rapid Reply

Free Catalog From Security Lock Distributors

A 128 page catalog from Security Lock Distributors of Needham, MA describes the company's lines of electronic locking devices and mechanical hardware.

The catalog includes illustrations of the products in each line, along with technical specifications and ordering information.



Circle 311 on Rapid Reply

Continued on page 24



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Electronic Access Control

"Like people, electronic access control systems come in all sizes, shapes and types. Let's look at several types of stand alone systems."

by Fred Barbaria

The electronic access control market is growing, and locksmiths are in a unique position to take advantage of that growth. Single door access control systems are a great place to start, as they tend to be the simplest to install. Like people, electronic access control systems come in all sizes, shapes and types. This article looks at several types of stand-alone systems, each of which may be more suitable than others for a specific application.

Access control systems work on one of three concepts: what the user knows, such as a keypad code; what the user has, such as a key or a card; or what the user is, such as a voice, fingerprint, or retinal pattern (biometric). There are advantages (and disadvantages) to each, with tradeoffs between convenience, relative security and cost.

The first step in the selection process is to define the customer's needs. First, how many doors? If there is more than one door, can they each operate as independent systems, or do they need to be networked together as a larger integrated system? How many users will be accessing each door, including an allowance for personnel growth? Does the customer have any special needs, such as those for manually impaired users, that might preclude the use of keypads or certain reader types? Do any of the access points require weather-resistant equipment?

What level of security does the customer need? Small keypad systems, for example, are relatively inexpensive and work quite well using one or two access codes, but the access codes could be "passed around" allowing unauthorized access. Exit and bypass switches are common requirements for even small systems, so many systems include an input that uses the controller's internal door timer. Anti-tailgating, which relocks the door upon closure, is a popular feature.

Controller relay output configuration

and switching capability should be studied to avoid installation surprises. Many systems, even small ones, now include a double-pole double-throw (DPDT) relay output capable of switching three to five amps. This allows the relay to control most door strikes, electric locks and magnetic locks. The second set of contacts can be used to shunt an alarm door switch, leaving the burglar alarm system armed, or even to disarm the alarm system in some cases.

Other requirements, beyond the scope of most of the systems covered here, include time/day of week/holiday scheduling, alarm reporting, and logging of access allowed and denied. These are features often found in larger, multi-door capable systems, and often require the installer to do wiring more extensive than the basic keypad or reader, controller, power supply, and an electric strike or lock.

Single door access control systems come in both single-unit and two-part systems; the two-part systems, consisting of a keypad or reader and a separate controller, require the installation and interconnection of two separate modules, but have the advantage of higher security as the controller is normally located on the "secure" side of the door.

The self contained systems have the advantage of simpler installation, but the installer needs to be sure that the system cannot be easily compromised. Using quick-disconnect leads to a strike, for example, ensures that physical removal of the controller from the wall disables the strike power.

There are keypad systems available from a number of manufacturers, ranging from self-contained units such as the IEL Door Gard series through the two-module systems from Essex Technologies and Securitron. Each of these systems often has features not found on the other systems, and therefore may be more suitable for

some applications. The Securitron DK-20+, for example, features two access codes, anti-tailgating, and a duress function.

The initial advantage of lower cost for a keypad system is often reduced in an installed system as the keypad cost becomes a small part of the overall cost. Keypads are sometimes thought to be of lower security, as the codes might be obtained by observation in some locations. Hirsch Electronics gets around this problem on its SL24+ Scramble-Lock by changing the keypad numbers' position each time.



The Securitron DK-20+ keypad.

Card systems come with a wide variety of technologies (magnetic stripe, Weigand, optical, etc.), and have the common attribute of the user inserting or swiping the card into or through a slot or opening. Magnetic stripe cards usually have the lowest initial cost, but the cards typically need to be replaced more often due to wear. In some locations, vandals may push gum, dirt, or even popsicle sticks into the card slot used on most card systems.

Card-based access control systems are available with either individual card codes or shared card codes. Shared

Continued on page 28

Continued from page 26

codes make the system setup easier, but one lost or stolen card compromises the entire group, requiring the replacement of all of the cards. Individually coded cards need to be separately enrolled (and disenrolled), either by the dealer or the user. Systems that use individually coded cards include either a programming keypad on the controller, a separate handheld programmer, or special programming cards for this purpose.

Proximity access control systems can be thought of as a special subset of card-based systems. They are inherently easier (and faster) to use, especially in dimly lit locations. Single-door proximity access control systems have shed hardware (and dollars) along the way, with system costs now competitive with small card-based systems. Proximity cards or tokens still cost more than magnetic cards, but typically last much longer.

SanBar Technologies' ProxiKey System uses individually coded proximity tokens, or keys, that are read near the reader/controller's faceplate. A "master" key is used for enrollment/disenrollment of other keys, and the controller includes a variable



The ProxiKey System from SanBar Tech. door timer and anti-tailgating feature.

Secura-Key's Entracomp 26SA stand-alone system uses a "slotless" touch card reader/controller. Individually coded cards are set on a special plate for reading and card enrollment/disenrollment, and a variable door timer is standard.



The Entracomp 26SA touch card system.

Biometric access control systems

have become popular in the past few years, especially for high security installations. Retina scan, voice, and hand geometries are all analyzed by various systems to allow or deny entry; most of the systems available are very expensive, very large, or both.

An exception to that rule is the IEI VoiceKey System, a self-contained single door keypad/voice access system that will handle up to 500 users. A weather-resistant version is available.

The decision as to which access control system(s) to offer to your customers is not simple, but you can make it easier if you pre-qualify the equipment you might use. Most manufacturers will supply you with cut sheets for prospective customers, along with a manual so that you can familiarize yourself with the equipment, its capabilities and limitations. If you pre-configure compatible hardware (access control system, strike or locking device, power supply) ahead of time, selling the package becomes much easier. Some manufacturers will even supply you with the evaluation systems and/or small demonstration systems so that you can become more knowledgeable about their products and demonstrate the system to your prospects. §



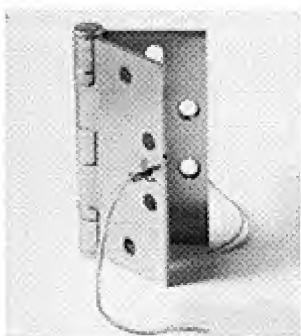
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ACSI Offers Hinge Modification

Architectural Control Systems, Inc., now offers electric hinge modification for virtually any manufacturer's hinge, enabling customers to achieve substantial cost savings and delivery efficiencies.

Customers may deal directly with ACSI, which also designs and engineers a full range of access control and OEM security hardware products for the architectural and security hardware industry.



Circle 239 on Rapid Reply

Alarm Lock's Exit Alarms

Alarm Lock Systems, Inc. produces a line of electronic emergency exit alarm locks. Their new models 250, 260, 700 and 710 feature both a deadbolt, for maximum security, and a positive locking deadlatch, for full panic device protection, in a sleek design.

These models, available in aluminum or duronic finishes, offer a blaring dual piezo sounder, a durable die cast cover, low battery alert, 9-volt battery and selectable 2-minute alarm or constant alarm.

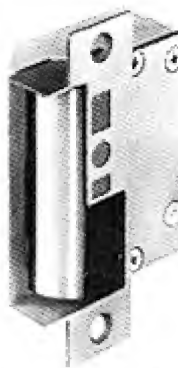


Circle 240 on Rapid Reply

Adams Rite Electric Strike

Adams Rite Manufacturing Co., introduces its 7900 Series of electric strikes for hollow steel frames, the first electric strikes specifically designed to fit the ANSI 3/8" offset preparation.

The basic 7900 strikes come in 6, 12, 16, 24 and 48 volt models, in AC or DC for intermittent or continuous use. They are BHMA Grade 1, all stainless construction and the fail secure versions are 3-hour fire-rated.

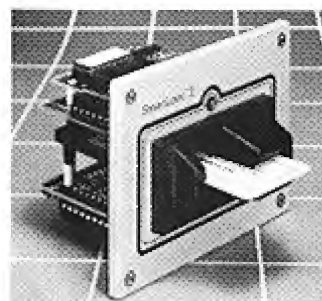


Circle 241 on Rapid Reply

SmartLock By Cansec Systems

SmartLock I is a self-contained programmable card reader that provides a simple and reliable means of selectively restricting access to sensitive areas of a facility. Its unique ability to support an audit-trail printer allows automatic auditing of all access and alarm activity.

The system consists of an attractive high quality anodized aluminum face plate and an insertion type reader cartridge with integrated microprocessor, non-volatile memory, battery backed-up clock and power supply.



Circle 242 on Rapid Reply

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Detex's Free Promotional Offer

Detex Corporation offers locksmiths a free promotional poster and door decal in order to help generate additional sales from its walk-in traffic.

The colorful materials inform customers that the locksmith carries the full line of Detex access control products, exit control locks and exit alarms. The poster highlights the Detex warranty, reputation for quality and a toll free hotline.



Circle 243 on Rapid Reply

D&H Distributing Features Keypad

D&H Distributing Company features the IEI Door-Gard Keypad as their most cost effective access control system. The IEI Door-Gard Keypad fits indoor, outdoor and heavy duty rugged applications. Built-in features include up to 32 users, latching on/off mode, Form C 5 Amp relay and a 0-90 second timer. Also, with the addition of an optional module, the Door-Gard Keypads can interface with a printer.



Circle 244 on Rapid Reply

Door Spy's Doorway Security

With the introduction of Door Spy DS-5, the first, four-way viewing device for apartment, office and hotel room door security, Door Spy, Inc. is inaugurating a new product line of four-way viewing devices.

Traditional peepholes permit the viewer to see a limited area in front of the lens, and often the view is distorted and blurred. Door Spy DS-5 permits viewers to see forward, below, left and right of the door, for 20 feet or more, 90 percent distortion free.



Circle 245 on Rapid Reply

DSI's Thin Door Locks

Digital Door Lock's model 2000 readily adapts to thin door or cabinet installations. The 2200 can be installed for a surface (rim), or mortise strike application on doors from 1/16" to 2-3/16" thick.

Featuring an outside turn knob, inside thumbturn, two, four layer laminated stainless steel throwbolts (one 7/8" and one 2-1/4" long), this lock is installed by drilling three 5/16" holes.

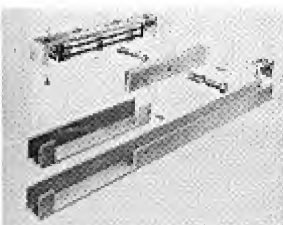


Circle 246 on Rapid Reply

Doortronics Offers Electro-Mag Locks

Doortronics Systems, Inc. introduces an up-graded line of re-engineered surface mounted electro-magnetic locking devices in two sizes and holding forces.

The 1106/1115 Series, with over 600 pounds of hold per leaf, and the 1110/1120 Series, with over 1200 pounds per leaf, are offered in models for single and pairs of outswinging, inswinging, sliding, and overhead doors, in five operating voltages, with color coded wire leads for easy identification. Brackets and mounting adapters are available to accommodate different door/frame conditions.



Circle 247 on Rapid Reply

IEI Announces Door-Gard

Attractively priced, IEI Door-Gard™ access control keypads fit indoor, outdoor, and rugged applications. Built in features include up to 32 codes, latching, faceplate programming, form c 5 amp relay, timer, and low voltage outputs. Printer/logging option available, linking up to 8 network IEI Door-Gard™ keypads together providing hard copy activity records for each keypad.



Circle 248 on Rapid Reply

KEE's Stand Alone Card Access

KEE Company has made available its new System 3 stand alone card access system. System 3 boasts standard features not even found in most computer-based systems and will support two card readers including one built-in reader.

The system is fully programmable with LCD display, alphanumeric keypad and non volatile memory. Other standard features include: 2,000 card capacity, (expandable to 10,000 cards), 8 user selectable card time zones, selectable true or timed anti-passback, and automatic lock/unlock time zones.



Circle 249 on Rapid Reply

Locknetics' Training Tape

Locknetics is proud to announce the start of an instructional video series. The planned series of videos will visualize the ease of installing electronic locking. Step by step directions, tools used, templates and more are included. The 390 video shows a lock system retrofit at a large Boston hospital and takes you through the procedures with a local registered locksmith.

Locknetics invites all locksmiths to see the future with their new videos.

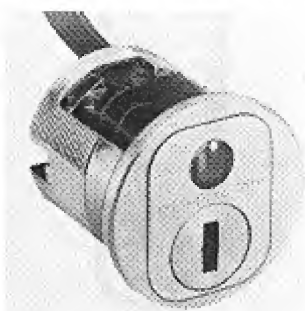


Circle 250 on Rapid Reply

Marlok's Stand Alone Product

Complimenting their popular wired access systems, Marlok has introduced a new stand-alone, access product line, Solitaire, which continues to use their unique, non-magnetic key, factory-coded with one of millions of possible combinations.

Marlok cylinders read infrared light. Valid codes allow the keyholder to turn the key conventionally. Cylinders are available to work with most mortise, rim cylinder, Schlage non-rotating key-in-knob, electro-magnetic locks and strikes.



Circle 255 on Rapid Reply

Omnilock by OSI Security Devices

OSI Security Devices has expanded its Omnilock line of Access Control Doorlocks to include a Narrow-Stile module which directly replaces mortise and rim cylinders, enabling existing door hardware to be used.

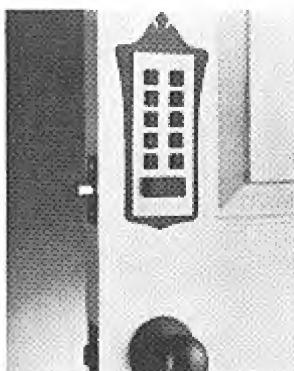
The cylinder replacement model comes standard with an exterior door-weather resistant option, which may now be specified for any Omnilock.

All Omnilock's are commercial grade devices capable of digitally controlling access to 250 individual users per door, without the need for keys, cards, or wiring. Omnilock's fit existing door preparations and provide auditing of entries, time scheduling of access levels, and other "card-access" features in a self-contained, wireless unit.

Preso-Matic's New Deadbolt Lock

A mechanical digital deadbolt door lock is now available with a shorter backset for installation in paneled doors from Preso-Matic.

The lock comes with a 2-3/8" backset, and is constructed of hardened steel deadbolt which rotates so it cannot be cut or sawed. 10-number buttons offer 10,000 or 10 million possible combinations.



Circle 257 on Rapid Reply

Radionics Offers ReadyKey

The ReadyKey™ proximity access control system from Radionics, Inc. provides touch-free™ access control through selected doors. The system includes electronic keys, key readers, and a door controller. Door controllers protect four, 128, or 4,000 doors. Add-on components expand the system to include more doors and users. Connected to a serial printer or a PC, the ReadyKey system provides full reporting capabilities of all entry and exit transactions, including user I.D., door location, time and date.



Circle 258 on Rapid Reply

Rofu Expands Electromagnetics

Rofu International Corporation offers its line of electromagnetic locks and accessories with a number of new products.

The sliding door magnet, series 8000, with a holding force of 700 pounds maximum, can be mortised into a door jamb or can be surface mounted by using the optional rim housing for the magnet and armature plate.

Z-brackets are available in standard and tamperproof models for all series of Rofu magnets.

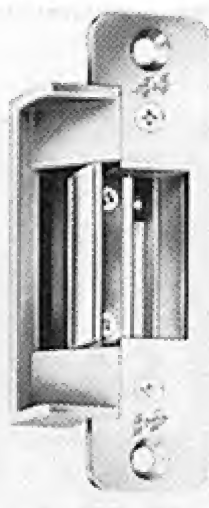


Circle 259 on Rapid Reply

RutherfordControls' Electric Strike

The tradition of quality and reliability continues from "offeff" and Rutherford Controls with its new 7104 ANSI electric strike which offers the horizontal adjustment feature to allow realignment capability of the strike after installation.

The enlarged latch cavity allows compatibility with cylindrical, narrow line.



Circle 260 on Rapid Reply

Proximity System From SanBar

The ProxiKey System is uniquely suited to residential access applications, such as gate and door lock control, in addition to commercial applications such as offices and computer rooms. The ProxiKey System uses small proximity keys, so it is easier to use, even in locations that are dark or exposed to the weather. The reader can be concealed behind building materials such as wood or plaster.



Circle 261 on Rapid Reply

SecuraKey's Entracomp 26SA

The Entracomp 26SA is a self-contained card access control system that utilizes state of the art electronics, providing a unit that is both inexpensive and fully programmable. The patented slotless Touch Card reader is protected from weather and vandalism.

Simply place the card on the stainless steel touch plate and the card is read instantly without error. The Entracomp 26SA has non-volatile memory. It controls up to 3500 individual card holders.

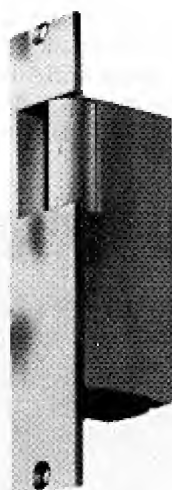


Circle 262 on Rapid Reply

Trine Improves 001 Electric Strike

Trine Products Corporation improves the 001 electric strike, increasing the latch support to make it stronger and more durable.

This movement was achieved by completely redesigning the internal mechanism to contain two moving parts, slider and latch.

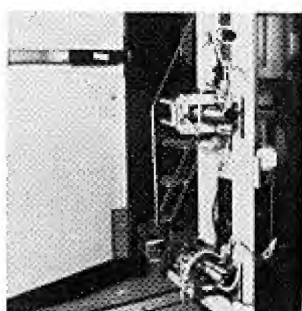


Circle 263 on Rapid Reply

Von Duprin's New Latch Guard

Von Duprin's new vertical rod and latch guard protects the bottom rod of an exit device from impact damage caused by carts or passing through the doors. This protection is essential to preserve the device's intended function and avoid jeopardizing safe egress during an emergency.

The guard provides an attractive, smooth, and unobstructed surface which allows the door to be easily pushed open with the bumpers of a wheelchair.

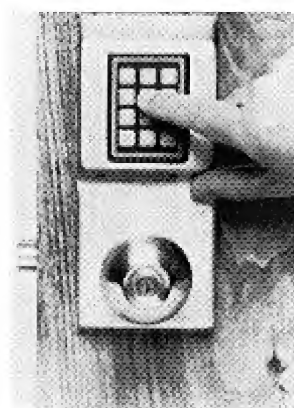


Circle 264 on Rapid Reply

Yaletronics' Electronic Locks

The Touchcode® series of electronic locksets from Yaletronics Inc. provides the protection of a securely locked door without the inconvenience and security problems associated with lost or stolen keys.

The keyless locks will effectively limit access by the public or unauthorized employees to private offices, computer rooms etc.

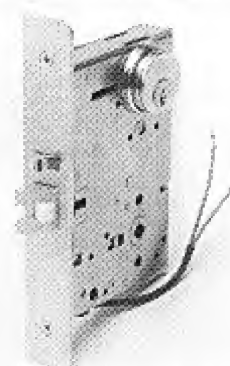


Circle 265 on Rapid Reply

ACSI's Lockmods

Series 1500 lockmods from Architectural Control System, Inc. enable distributors to minimize modification costs on virtually any lock and provide state-of-the-art access control. A value-added benefit is ACSI's fast factory turnaround and delivery.

ACSI's U.L. listed Series 1500 lockmods are suitable for any door access situation and offer Fail Safe and Fail Secure control modes to ensure reliable access control and security.



Circle 266 on Rapid Reply

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Electronics For The Locksmith

"These units are ideal for the beginning installer because they combine ease of operation and installation with some of the multi-door system features."

by Chuck Fontana

If you are a locksmith and you are not installing electronic, card access systems, you should ask yourself why not? Perhaps the systems have appeared too complex, too expensive and too much of a departure from your business and expertise. A few years ago this was the case, but it is not the case today.

Recently, the market has seen the development of a series of high security, single door, stand-alone access control units. These units are ideal for the beginning installer because they combine ease of operation and installation with some of the multi-door system features, i.e., event storage and logging with printer output. Most are easily programmed and none require

computer knowledge or hardware.

There are design differences from one door control to another that should be considered when selecting one for an application. Some models are designed with all the electronics contained within the reader. This design saves on wiring costs, but if the application is exposed to a high risk of vandalism, it may be wiser to select a design where the electronics are remote to the reader and located out of harm's way.

There are differences in the card access technology which translate into advantages and disadvantages too. With stand-alone controls there are four broad types of card technology popularly used which are relevant: Bar Code, Magnetic Stripe, Weigand, and

Proximity.

Bar Code Reading Technology employs a reader which uses a light beam to read a bar code tag placed on an ID sized card. Usually the light beam is infrared, beyond the visible light range, but it can be incandescent. When the card is inserted or swiped through the reader slot, the light beam reads the bar code and sends the appropriate command to the door lock.

The advantage of bar code is that the cards are inexpensive. Almost anyone with a bar code printer, laminator, card stock and labels can make their own cards.

As a disadvantage, the readers will

Continued on page 38

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Continued from page 36

require periodic maintenance. Dirt will fog the reader lens and the light intensity may require periodic readjusting. Cards wear and will misread which can frustrate the user. Also, if application is exposed to a risk of vandalism, the slot readers are easily clogged or broken.

Magnetic Stripe Readers see a magnetically encoded number hidden within the metallic stripe etched in the card. When the card is swiped or inserted in the reader, magnetic heads in the reader sense the code and send the appropriate command to the door. Cards are similar to the ATM cards used by banks.

The advantage of magnetic stripe is that it is an inexpensive card, although it costs more than the bar code. Its size and shape is that of a conventional credit card. It is considered to represent a higher level of security than that of a bar code. The user can buy magnetic card stock and with a magnetic encoder program and issue their own company cards.

Magnetic readers will require periodic maintenance. Metal particles and dirt collect in the read head and will reduce the magnetic head

sensitivity. The cards wear and will need to be replaced periodically, depending on usage. Exposure to a strong magnetic field may render the card useless. As with all slot readers, it may not be a good choice if there is a high risk of vandalism.

Wiegand Card Technology is based on an electromagnetic principle. Special wires are strategically positioned and imbedded within the card. When the card is passed through the reader, a magnetic field produced by the reader is varied in a way which corresponds to the wire configuration of the card and this in turn is translated into a unique ID number.

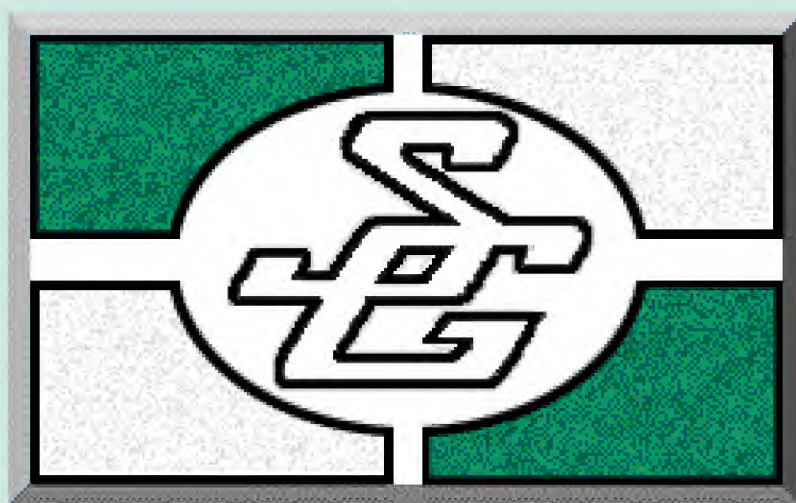
The advantage of Wiegand is that it offers a very high level of security and the cards are durable and reliable. In addition, the card styles offer some variety. The card can be obtained either in the shape of a credit card or a key which can be conveniently attached to a key chain. The disadvantage of Wiegand is that the cards are relatively expensive and cannot be encoded or made in the field. Some lead time is required when ordering cards. As with all slot or insertion readers, some periodic maintenance is required.

Proximity Reading Technology was first introduced by Schlage Electronics

in 1974. For years Schlage was the world's only supplier of proximity access controls. During the mid-80s, several companies began manufacturing proximity controls using a vastly different technique than Schlage's, but with similar results. Simply stated, the reader transmits a fixed, low power RF signal. When the card is passed within close proximity of the reader, anywhere from three inches to three feet, depending on the reader and card style, the signal energy from the reader causes the card to activate and re-transmit a unique coded signal back to the reader. This coded signal is then translated into a command to operate the lock.

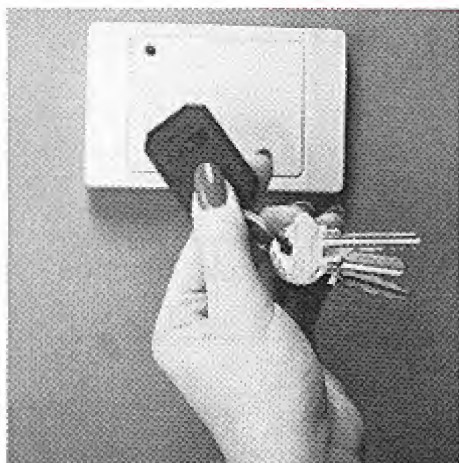
The advantage of proximity is that there is never any contact between the card and reader. Consequently, the cards have a longer life and the readers require virtually no periodic maintenance. No slots to clean or be clogged, the readers can be installed to be completely vandal and weather proof.

The electrostatic proximity technology developed by the Indala company offers some additional flexibility. (See photograph 1.) Readers can be purchased in a variety of styles to better suit an application. The cards can also be purchased in the shape of a credit card or key tag. (See photograph 2.) And, Indala makes one of the few



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1. Indala key tag with Keri Systems KWS-5.

user buying motive. Whether that motive be security, cost or convenience, there is a stand-alone door control to fill the need. True, if the user needs to control several doors with continuous event logging on a computer disk, multiple time zones, access levels and alarm zone monitoring, of course the multi-door system is required.

There is a large market of users, however, with a need to control one to four doors who want the advantages of an electronic access control, but are not interested in collecting reams of data, nor are they interested in training an employee in the use of a complicated

operating program. For these customers, the single door control is a good choice.

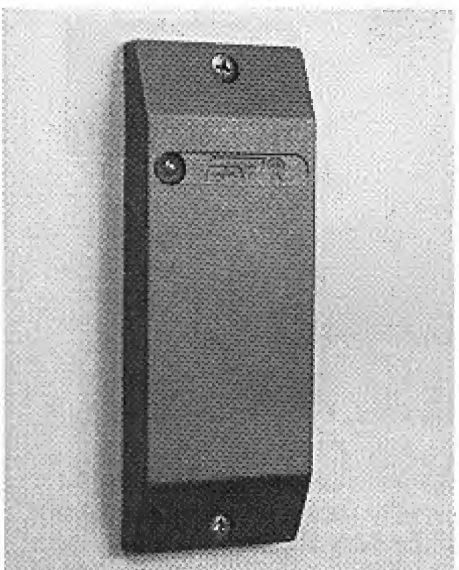
For the beginning installer, the single door access control offers a simple avenue into the business of installing card access controls. The installation is simple and compliments the installation of electric locks and door hardware. And, since most single door controls can be expanded and lead to larger access control systems, as your customer's needs grow, so will your business.

The author is from Keri Systems, Inc. of San Jose, California. §



2. Indala key tag, close-up.

proximity readers that can be mounted directly on metal. (See photograph 3.)



3. Indala mullion reader (Keri KDF-3).

The primary disadvantages of proximity is the cost of the cards and, at this point in time, the cards are not field programmable. Cards have to be specified and ordered from the factory which requires some lead time.

Each technology suits a particular



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Fort's Switch Lock

"It isn't often that you can meet four demands all at the same time, but the Fort multi-function switch lock gave us the answer fast."



Send your lock and key questions to Jack Roberts, The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107.

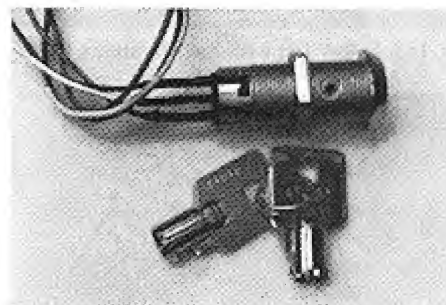
by Jack Roberts

We recently were faced with the problem of providing single pull Off-On switch locks for a customer who wanted power On when the key was inserted and turned and power Off when the key was removed. An automobile or motorcycle ignition lock would be a good description of what was needed, and we did make some serious attempts to work various types of these locks into the design. Space limitations, engineering specifications

and budget restrictions just wouldn't allow any of our efforts to meet the demands presented.

We did find that it is possible to convert a momentary switch to direct Off-On, however the time (read that expense) of such a conversion made the cost factor excessive.

Also our specs called for a key of somewhat higher security than that offered by a disk tumbler type of lock. Our research led us to The Gem Rekeyable Multi-Function Switch Lock from Fort Lock Co. (See photograph 1.) This lock provides three different locking functions, i.e.; Single Key pull for momentary action. The tubular type key met the requirements for security, the size of the unit met the space



1. Fort Lock's Gem rekeyable multi-function switch lock.

requirements, the changeable function met the specifications and the cost factor was within the budget limitations. It isn't often that you can meet four management demands in one small package but the Fort Multi-Function gave us the answer real fast.



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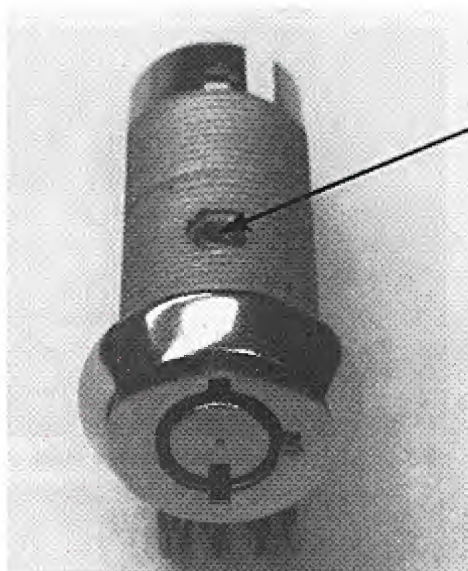
SRI and Steve Young are working together to bring you the best in locksmith tools and supplies.

The versatility of the Multi-Function makes it a stock item for our shop now, and is replacing our inventory of various type switch locks which we have previously stocked.

Packaged as a Two Pull "Off-On" unit, which Fort refers to as Function "A", conversion to another function is relatively quick and easy—the second time. I am always fussing about instructions, but I honestly believe that the instructions for programming a VCR are easier to follow than the instructions which come with the Multi-Function.

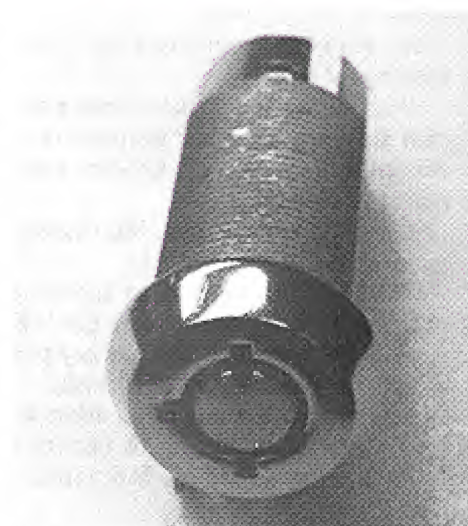
Once you get it, you have it, but that first time is a real bear. Understanding the design of any lock is of importance for service or repair and if we examine the design of the Multi-Function lock and the intentions of the design engineers, conversion to the various functions becomes somewhat easier.

The first step is locating the 12, 3, 6, and 9 o'clock positions relative to the face of the lock. Notice in photograph two that the plug retainer is at the top of the lock body. This is the 12 o'clock position with key pull slots at 12, 3, and 6 o'clock. Turning the lock body 180 degrees places the plug retainer at 6 o'clock and the key pulls at 6, 9, and 12 o'clock. (See photograph 3.)



2. Arrow indicates plug retainer.

Herein lies the secret of easy conversion to a different function. The first step in disassembly is removal of the switch located at the rear of the lock. This is a bayonet type assembly and is removed by pushing in and turning in a counter-clockwise direction. The switch will then lift out of the lock body, along with the switch actuator, torsion spring and cam stop. (See photograph 4.) It should be pointed out that the spring is referred to as a torsion spring in the instructions



3. The plug retainer and key pulls repositioned.



4. Components of the switch.

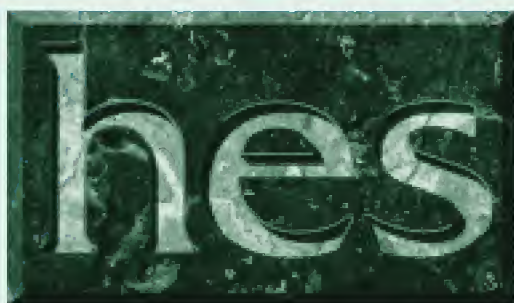
and as a compression spring in the nomenclature list. Don't be confused...there is only one spring!! Call it what you like. (At this point of disassembly repinning of the plug may be accomplished by screwing a 4-32 screw into the retainer pin which forces the pin out of the housing. The plug is



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then removed from the rear of the housing for service.)

With the switch, actuator, spring and cam stop removed our purpose is to convert to Function "C"; Off-On, 1 key pull at 12 o'clock.

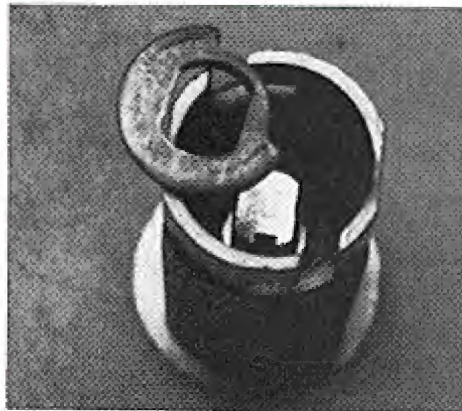
Insert the key and turn 180 degrees, remove the key.

The lock now appears as shown in photograph 3, i.e.; the retainer pin is at the 6 o'clock position and the key pull openings are at 6, 9, and 12 o'clock.

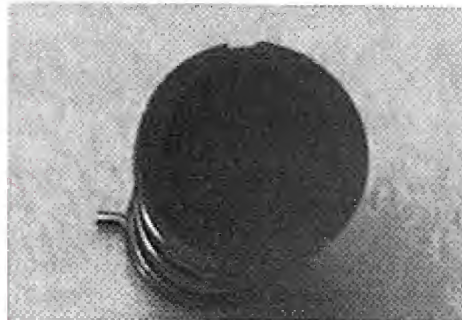
(This is the same configuration we would use if converting to Function "B", Spring Loaded Momentary Contact.

The lock body is now positioned face down with the retainer pin at 12 o'clock and the cam stop pin on the rear of the plug, visible by looking into the rear of the shell, also at the 12 o'clock position. The cam stop is inserted into the shell with the cam opening between 12 and 3 o'clock. (See photograph 5.)

A long nose plier, forceps or alligator tip tool is helpful in positioning the cam. The key can be inserted and turned at this point to make sure that the cam is properly positioned for single pull. If the spring has become separated from the actuator, reassemble by placing the spring on the double flat end of the actuator. The "hook" of the spring must be to the left of the cutout in the actuator as shown in photograph

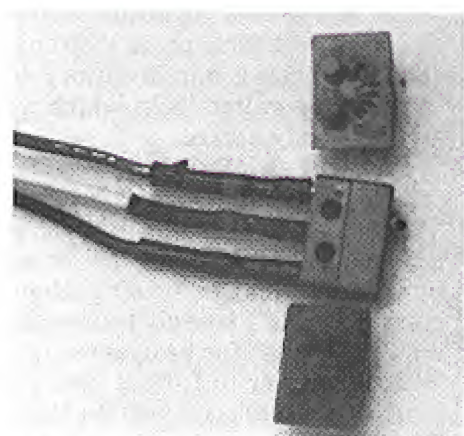


5. The cam stop inserted into the shell.



6. The hook of the spring shown to the left of the cutout in the actuator.

six. There is a two piece housing which holds the switch in the lock body. If the parts become separated, (see photograph 7) it ain't broke!! Just place the pins on each part of the housing into



7. The two piece housing for the switch.



8. The housing switch reassembled.

the holes in the switch for reassembly. (See photograph 8.) (The switch housings will only fit one way.) With the cam stop in position place the spring

Continued on page 86



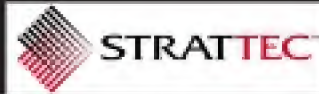
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Impressioning Ford Locks

"Many of you are still using time and labor consuming techniques to fit keys to these locks, rather than impressioning them."



by Don O'Shall

In 1984, the Ford Motor Company introduced the first models using its ten tumbler ignition lock cylinder. In October of 1985, *The National Locksmith* broke new ground in describing, in a feature article, how to successfully impression these locks. To this date, no other magazine has covered this valuable information.

Many of you were servicing these only by code in the early years, or even

not servicing them at all. But today, the cars have been around for up to six years, codes are frequently not available, and rare indeed is the shop performing automotive locksmithing which can afford to turn down as many jobs as are likely to come in for servicing these locks.

Yet many of you are still using time and labor consuming techniques to fit keys to these locks, rather than impressioning them.

Since the locks were nearly brand new in 1985, that article had to cover all aspects of servicing them. This article will concentrate on the techniques needed to impression them quickly and profitably. If you did not read the 1985 article, right now you are probably

thinking "Sure, impression a sidebar lock!" But this is not like impressioning other sidebar locks.

As you know, one of the things that makes the sidebar lock tougher to impression than a standard cylinder is that the tumbler springs are stronger than the sidebar springs, and there is no easy way to put direct pressure on the sidebar itself to overcome that spring pressure.

However, if several of the tumblers were to be lined up at the correct height, the sidebar would attempt to enter its slot, and now would bind against the remaining tumblers to create impressioning marks.



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With the standard GM lock, the problem is in getting to that point, but with the Ford ten cut key, much of the work will be done very simply, bringing us to that point quickly.

The difference is that with most sidebar locks, we are starting out at ground zero with no clues as to what the combination is at any point. But with the Ford sidebar tumbler lock, we can get the first six cuts on the key from the door lock by either impressing the disc tumblers, reading the disc lock wafers, or by disassembly. This gives us the first two of the six tumblers in the ignition.

Don't get too excited, however. Two tumblers being lined up are not enough to make impressing for these. Three tumblers being lined up might give us the marks we need, but four will almost definitely give them to us.

So how do we go from two to four known? Bear in mind that regardless of which two of the four remaining cuts we get, we should get acceptably good marks. And if we end up knowing cuts 3, 4, 5 and 6 the sidebar will be canted toward the known cuts. If we end up knowing cuts 1, 2, 5 and 6, the sidebar will be tending to rock against the center tumblers. Either of these conditions tends to give us excellent marks. (See illustration 1.)

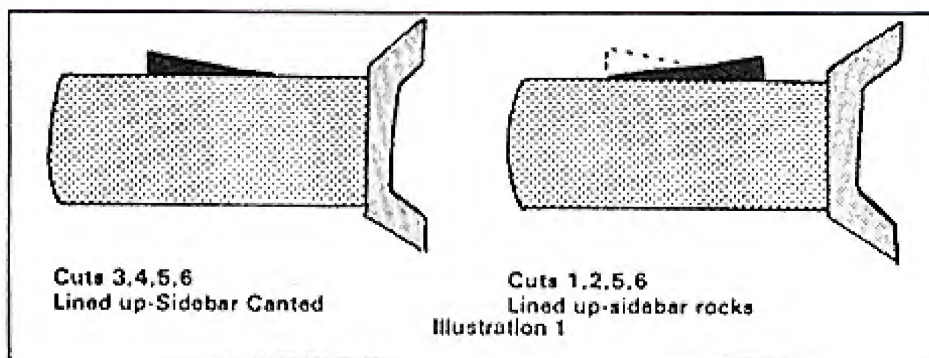
Once we have the key fitted to the door cylinder, our first step in impressing the ignition lock cylinder is to smooth out the remaining four positions at the tip of the key to a number one depth (.348" from full blank width). Then insert the key in the lock and use standard impressing techniques to try to create a mark.

Unlike a standard cylinder, though, don't be surprised or discouraged if you don't get any marks. This simply means that not enough of the tumblers are lined up to bind the tumblers and create a visible mark.

The marks we are looking for at this stage are usually not going to appear in the center of the top of the blade, but on its top edges, by the way.

When we get a mark, it may be a single mark on one of the top edges or a "paired mark" on both its top edges. At this time, ignore any marks in the top center of the blade, since they are likely to have been created by the spring pressure against the tumblers.

"Single marks" occur when the non-marking tumblers are at the correct height. "Paired marks" tend to occur when the non-marking tumblers are only one depth cut away from being



correct. It should be noted, however, that this could be one depth too deep or one depth too shallow.

For the time being, let's assume that you get no marks with the remaining four cuts being at a number one depth.

The next step is to cut these four to a number two depth straight across, and try again for marks. If we still get no marks, cut it straight across at a number three depth. And so on.

Continued on page 47

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Continued from page 45

For those of you who are statistic-minded, it is interesting to note that in roughly 84% of the cases, by the time you have run the five sets of depths (one to five), you will have created clearly visible marks. Approximately 11% will indicate on the number one depth, approximately 17% on the number two depth, approximately 31% on the number three, 18% on the number four, and 8% on the number five.

When you get the mark(s), take notice of which positions are still not marking. The fact that they are not marking when the others begin to indicate that they are already at the correct depth, and by being right are permitting the sidebar to bind against the tumblers in the other position(s).

Now cut just the positions that are marking down to the next depth and impression again to create the marks. Where you do not get the marks, take note of the depth. Where you do get the marks, cut it down to the next depth.

If you get down to the deepest depth and still get a mark, it is time to take a new key, cut the known depths onto it, and start from the top again. Many times, you will find that the tumblers being lined up to create a usable mark occurred after the other position(s) were already below their correct depth. In these cases the second key will get it for you.

Continue this process until you have a working key. In slightly over 84% of the possible combinations, this will be within the first two keys, with an elapsed time of less than fifteen minutes (far less if you use a code machine to cut the depths).

But what about the remaining combinations? Well, like GM we have a "safety factor" or MACS of two, which means that we will never have a two depth next to a five, or a one depth next to a four or five. This limits the possibilities for the positions, and allows us to use progression techniques to create the initial marks if the straight across depths fail to create a mark, which, as we saw, will occur in some of the possible combinations.

This will take a little extra time, and will use up to three extra key blanks. We would choose two positions next to each other (either one and two or three and four) to work with, and cut the remaining two positions to a smooth number one depth. We would then cut a pair of depths on the key in the two

positions we chose, and impression it for marks in the smooth number one depth positions.

If no marks appear, re-cut the two depths we have chosen to work with to the next pair of cuts from the progression chart in illustration two, and once again impression it for marks in the smooth number one depth positions. And so on.

We would continue until we reached the end of the first column. Then we would take another blank and repeat the process for the second list column.

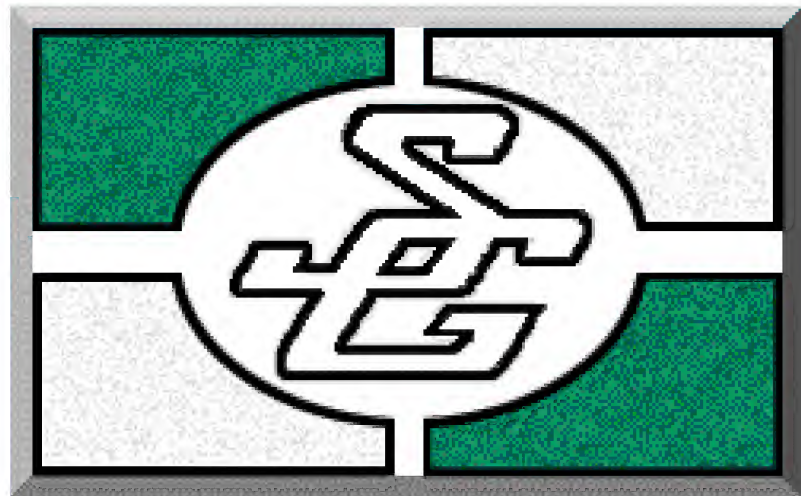
Because the safety factor (MACS) is two, we could also rule out some of the combinations to save some time. For example, if the cut in the fifth position

Key One	Key Two	Key Three
1-1	2-1	3-1
1-2	2-2	4-2
2-3	3-2	5-3
2-4	3-3	
3-4	4-3	
3-5	4-4	
4-5	5-4	
5-5		

Illustration 2

from the tip were a #1, we know that the cut next to it (the fourth position from the tip) cannot be deeper than a #3, so we can rule out the 4-5, 5-5, 4-3, 4-4, 5-4, 4-2, and 5-3. If the cut in the fifth position were a #5 instead, the cut

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Locksmith Education

Here is information on some of the institutions providing educational programs to the locksmiths, both advanced and beginner.

Acme School Of Locksmithing

Acme School of Locksmithing, one of the only residential schools in the Midwest, is approved by the Illinois State Board of Education, and its director, William T. Beranek, has been a certified locksmith since 1973.

William Beranek was the founder and past president of the Illinois and Indiana Locksmith Association and is currently active in supervising all classes in the Acme School which are taught by state approved instructors.

William Beranek has a successful lock and key shop on the school premises where students may observe qualified locksmiths in action. A locksmithing career can offer a potentially lucrative weekly income, as well as begin the first steps to self employment and financial independence.

The Acme locksmith course is taught in an actual workshop setting and the ample space classroom is designed to accommodate eight students per session very comfortably.

The hands-on training covers all aspects of locksmithing including: the history of locks and keys; assembly and disassembly procedures; deadbolt installation; combination safe locks; automotive ignition replacement; cylinder keying; master-keying; key duplication; lock picking, and automotive locks.

Included with the course are the locksmith manual, key blank catalog, locksmith tool catalog and information on locksmith suppliers and wholesale dealers.

The professional tools in locksmithing are also included in the course. The tools are: cylinder removing tools; plug followers; car opening tools; lock pick set; file set; pin tweezers, and a picture I.D. card.

Specialty classes of aspects in the locksmith industry will be offered in the

future by the school.

The next scheduled day class will begin September 17 and this class is for two weeks from 9 a.m. - 4:30 p.m. Monday-Friday, and has an hour for lunch break. The scheduled night classes start October 9 and run for five weeks from 6:15 p.m. - 10:15 p.m. on Tuesday, Wednesday, and Thursday.

Circle 293 on Rapid Reply

Foley-Belsaw Institute

The Foley-Belsaw Institute is well known as an excellent source of locksmith training. Recently added to the curriculum is the Foreign Car Lock Servicing Course. Only about three in ten locksmiths are qualified to work on foreign cars. Yet the numbers of these cars on the road is growing fast. Thus, much opportunity awaits those qualified to service foreign car locks.

As part of the course you will receive actual experience with exactly the kind of locks, keys, parts, and special tools you will work with in your foreign car practice. You learn by doing. As a result, you'll be able to handle many jobs long before you finish the course. Plus as part of your hands-on training, you will receive and keep the locks (\$200 retail value). You will be able to sell these to future customers after finishing your lessons.

Following are the subjects you will learn from twenty complete lessons: introduction and safety tips; Japanese car door and trunk locks; steering column ignition locks; steering column ignition lock with the cylinder assembly; foreign pin tumbler ignition locks; push-button door and trunk locks; European ignition locks; cutting keys by code; impressioning imported key locks; master and submaster keys; car opening; troubleshooting; high security keys; and how to profit from servicing imported car locks.

This course gives you everything you'll need with nothing additional to buy. Also, both as a student and after

you graduate, you are entitled to send any questions on work problems to Foley-Belsaw for prompt expert advice. This privilege is yours as long as you are in business.

Foley-Belsaw offers an iron-clad satisfaction guarantee. Examine the course for 30 days. If it's not everything they say it is, your money is refunded. You risk nothing to expand the profits of your business.

Circle 294 on Rapid Reply

Golden Gate School of Lock Technology

The Golden Gate School of Lock Technology, located in Oakland, California, was founded and established in 1970 by Edwin W.L. Scott, Jr.

Since its opening, the school has dedicated its efforts toward providing the finest in "hands-on" practical locksmith training. The school also offers residential training in electronic security and correspondence training in locksmith business management. The Golden Gate School is licensed by the California State Board of Education.

All students attending the school are thoroughly screened, photographed and registered in school files. Students are also required to be fingerprinted and records checked by the Department of Consumer Affairs for the State of California.

Training is given in all aspects of locksmithing on basic and advanced levels, allowing any business to look upon the graduate as an asset to his company, since he would not have to spare as much time to train employees.

The Golden Gate School is unique in several ways. The teaching technique has been praised by students; graduates from the first class to the most recent are welcome to call or visit the facility at any time. Additional instructors are readily available when needed.

The Electronic Security course is

Continued on page 56

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taught on a level that is easy to comprehend because of so much "hand-on" training. The subjects include: Basic Electricity; basic electronics; wiring diagrams; running wire; basic residential and auto alarm systems; closed circuit television, and access control systems, as well as troubleshooting, sales and pricing procedures.

Locksmith and electronic security classes are only held twice a year because the school's goal is to train potential employees. The Golden Gate School does not accept grants or G.I. bills; students are accepted more on their willingness to learn and their interest in bettering the industry as well as themselves.

Circle 295 on Rapid Reply

HPC Learning Center

HPC's Learning Center, located in Schiller Park, Illinois, offers locksmithing clinics, travelling seminars and chain clinics. The locksmithing clinics include comprehensive lectures, as well as hands-on training with the widest variety of tools, key machines and locksmithing equipment.

The traveling seminars take place all over the United States. The seminars vary from lock picking to electronic code cutting.

The chain clinics are taught in both Basic and Advanced. They are broken down into three 4 week sessions. The classes are held two nights a week for 3-1/2 hours.

The first 4 week session in the Basic Chain Clinic consists of key blank identification, key duplicating and changing combinations of pin and disc tumbler locks. The second 4 week session includes key-in-the-knob (service and installation), mortise locks (service and installation), picking and car opening (Ford, GM & Chrysler). The third 4 week session includes impressioning, code cutting, code books, software and masterkeying.

The first 4 week session in the Advanced Chain Clinic consists of tubular locks, servicing high security (Abloy, ASSA, Emhart and Medeco), servicing and key cutting high security dimple locks (DOM, KABA, KESO & multi-lock), servicing Ford 10 cut, VATS/PASS with interrogator, air bag columns and foreign auto lock servicing. The second 4 week session includes lock installation on glass and

aluminum doors, basic electricity, access control (Core Key, Simplex & Marloc), advanced masterkeying and computerized locksmithing. The third 4 week session includes shop management, safe lock servicing, manipulation and the theory of safe penetration.

With the new Chain Clinic system, you may pick and choose from the agenda, as you see fit. You can sign up for as many 4 week sessions as you like. They do not have to be consecutive.

For several years now, HPC's Learning Center has been teaching new locksmiths the basics, as well as teaching experienced locksmiths some new tricks.

Circle 296 on Rapid Reply

The Lock and Safe Institute of Technology

Any man or woman interested in entering a recession-proof career can learn the locksmith trade from the experts at the Lock and Safe Institute of Technology, Inc.

"We teach a complete line of locksmithing skills, and we work with our students so as to fit their classes and on-the-job training into their personal schedules," stated Lewis Jonas, director of the Institute in Pompano Beach, Florida.

The students are taught such skills as: changing lock cylinders; repairing cylinders, re-keying cylinders; opening cars; making keys; opening safe locks and other locks; changing safe combinations; installing burglar alarms; and various business techniques.

Lewis and his brother, Howard, founders of the Institute, have trained many locksmiths who have gone on to start their own businesses. The Jonases taught special education and industrial arts classes in New York schools, worked as professional locksmiths there for 12 years and in South Florida for the past ten years.

The purpose of the Institute is to provide students with a comprehensive and detailed education in the workings of locks and safes, covering most aspects and phases of locksmithing.

The course of study at the Institute take 420 hours. In addition to the time in the classroom, students are taken on actual jobs so they can obtain hands-on experience in all types of locksmith work. Students also go into the field to observe and participate in locksmith work.

The school has open-end enrollment

in that students can enroll any time and work at their own pace. Graduate students have access to a 24-hour help line. The courses are continually updated and seminar mini-courses are offered for practicing locksmiths to strengthen individual areas in which they may need help.

Upon the completion of the course, each student is awarded a certificate and also given a key-cutting machine, a pinning kit, a pick set and other items.

Circle 297 on Rapid Reply

NRI School

NRI knows that the more you learn, the more you earn. That's why NRI's Locksmithing and Electronic Security course now includes additional information-packed lessons on safes and vaults, at absolutely no additional tuition cost. Now, more than ever, NRI prepares you to take full advantage of every money-making opportunity in locksmithing today.

There's good money to be made in safe and vault servicing as more and more home and business owners turn to these important security devices for reliable and convenient fire and theft protection.

That's why NRI course developers decided to add extended coverage of safes and vaults to offer complete training in locksmithing and electronic security. Now, following diagrams, photos, and step-by-step instructions, you learn how safe and vaults operate, how to change a safe lock combination with skill and precision, and how to open a safe or vault without using a drill. Plus, you get expert tips and techniques on servicing safe deposit boxes, invaluable training sure to set you apart as a true locksmithing professional.

Best of all, NRI has made special arrangements to offer you optional hands-on experience with the Model 1200 Sentry Fire-Safe, a precision-engineered safe you can choose to train with and keep.

NRI also includes training in the fast-growing field of total home security at no extra cost. With today's concern over the rising crime rate, you may want to get in on the big money being spent in electronic fire and burglar alarm installation--and as a trained locksmith you'll have a head start on the skills it takes to compete in this wide-open field.

Circle 298 on Rapid Reply

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Picking GM Locks

"There are a number of methods that can be used to open these locks without destroying them, leaving a repairable cylinder."

by Bob Sleveking

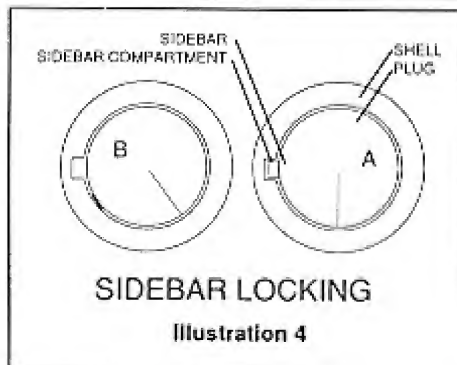
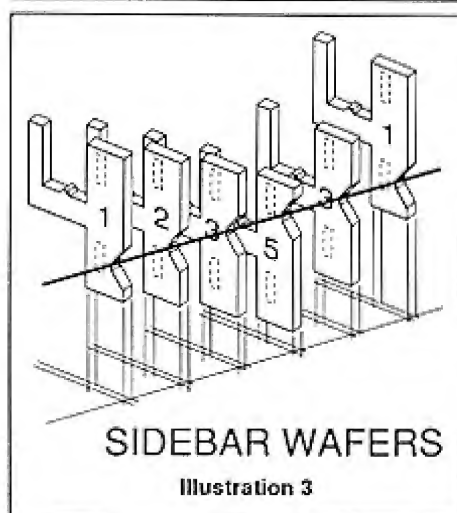
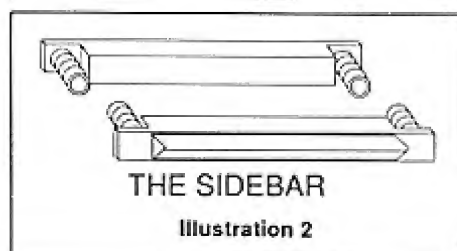
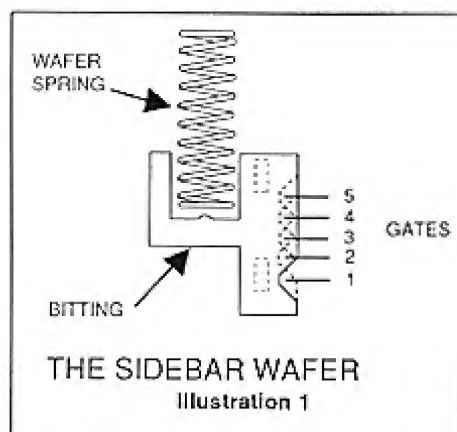
The General Motors sidebar lock is an extremely well engineered lock. It was so well designed, that for nearly sixty years it has been considered unprofitable to pick. There are, however, a number of methods that can be used to open these locks, without destroying them. Many locksmiths consider these methods "picking." Most of all methods will leave the cylinder in a repairable condition.

The sidebar principle is, mechanically, very similar to the lever lock principle. The gated wafers are raised by the key to align the gates under the sidebar. When all gates are present under the sidebar, it will depress into the plug, allowing the plug to turn. The sidebar is an evolution of the fence, specifically adapted for use in cylindrical locks.

This same sidebar principle is evident in a number of other "high security" cylinders. Unlike the wafers of the wafer lock the wafers of the sidebar lock do not directly prevent the plug from being turned. Turning force, applied to the plug, will not "bind" or affect movement of the wafers in this sidebar lock. It is for this reason that picking and impressioning cannot be consistently performed.

The sidebar wafer, shown in illustration one is unique to GM sidebar locks. Another design, very similar but different from this one, is used in locks found in the Ford sidebar ignition locks manufactured after 1984-1/2. The biting portion of the wafer contacts the blade of the key. The wafer spring, centered over the biting, forces the wafer down against the blade of the key. All wafers will have a gate in the edge, as you see. The position of the gate determines the "lift" necessary to bring the gate into alignment with the sidebar.

The sidebar, shown in illustration two, has a "V" shape which fits into the gate of the wafer. The "V" shaped gate



allows the wafers to "eject" the sidebar as the key is removed, automatically relocking the cylinder. Small springs, at both ends of the sidebar, press the bar "lightly" against the wafers.

When all wafers, are raised to the correct height for the combination of the lock, (see illustration 3) the gates will be perfectly aligned under the sidebar and it will drop. The sidebar, as you see in illustration 4A, is extended into the sidebar compartment, while in the locked condition. Only by retracting the sidebar can the plug be turned. Turning tension on the plug is translated to "shearing" force on the sidebar. It does not force the sidebar inward, against the wafers.

If you are asked to make a key for a GM auto that has an in-dash ignition lock or if you need to open a trunk lock on an auto that has no other related cylinder, you will need to pick the cylinder to make the key. The ignition must be picked to the accessory position to be removed and the trunk lock, even if it is handed to you in the shop, must be picked to be disassembled. Picking is also necessary on the older in-column ignition cylinders.

Picking to the accessory position is a necessary first step to disassembly, when no code is found on the lock body. As you can easily see, picking GM cylinders without destroying them is a common and reasonable request of the locksmith. One that you should be reasonably knowledgeable in, and thoroughly competent at completing in a "profitable" manner.

Special rocker picks for GM autos, like those shown in illustration five, have been used by some locksmiths with good success. The picks are shaped to resemble the profiles of common GM keys and are made from thin flat tempered spring steel. The curved shape of the back of the pick

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If a customer brought in a GM trunk cylinder and asked to have a key made for his lock, you would have a cylinder "in your hand" that would look very much like that shown in illustration six. After removing the cylinder return spring, cap, and shutter assembly, you are ready to disassemble the cylinder. You will notice that the lock plug must be rotated about 135 degrees clockwise to allow the plug to be removed out the front of the case. To rotate the plug, the lock will have to be picked, if you don't have the proper key.

Lubricate the lock with a good spray oil and exercise the wafers with a blank key. Turn the key in the plug, to make sure the plug is free in the shell, and look into the keyway with your pen light, to make sure all the wafers are working freely.

In the "A" portion of illustration six, you will see that a 1/16" hole has been drilled in the side of the lock case. A hole drilled at the location shown will be exactly centered over the sidebar. Center punch and drill a hole as you see in the illustration. The hole, which will in no way effect the security or working of the lock, will allow us to put pressure

on the sidebar with a blunt (not pointed) poke tool. The sidebar pick tool shown in the illustration has a sharp end and a blunt end. Use the blunt end for the side drilled cylinder.

Hold the cylinder in a vise and, while applying pressure to the sidebar with the blunt end of the pick tool, rake the wafers with a diamond pick. You will be able to feel the sidebar depress, as the wafers are picked. When the sidebar is fully depressed (picked), the wafers will all be "rigid." The sidebar will prevent them from moving.

Maintain pressure on the sidebar, while you rotate the plug with a small screwdriver. If the lock is picked, the plug will turn easily. The sidebar will slide from under the blunt poke tool as it is carried around with the plug, and be "captured" by the shell. Rotate and disassemble the plug from the shell. Once the plug is out, it can be picked again. Use thumb pressure on the sidebar, this time, as you rake the wafers with the diamond pick. You will feel the sidebar depress, as it captures the wafers.

Maintain the thumb pressure as you read the wafers with a wafer reader tool. If you're feeling lucky, or if this is the tenth lock you've done today, you might just sight read the wafers from the top. In no way is it necessary to remove the sidebar to sight the wafer gates or remove the wafers to decode them by the location of the gate.

But, what if you are asked to open a locked GM trunk? There is no key, but you know the lock to be in good working order. Many times it is both profitable and economical to open the trunk lock by picking. In some cases, you will even find it easier to open the trunk by picking, then make the door/trunk key from the trunk lock. (Fiero? No Glove box lock? Don't have a replacement lock?) This picking technique works.

Use a small screwdriver and a small pair of diagonal cutters to carefully peel and remove the cylinder cap, shutter, and shutter springs. Don't lose these parts, as all but the torn cap will be used when we reassemble the cylinder after the key is made. The "B" portion of illustration six shows the location for our 1/16" access hole. The hole is drilled on a slight angle (approximately 3 degrees) toward the outside of the lock case. Use a sharp drill, and drill carefully. The drill will exit the plug, and enter the sidebar compartment between the extended sidebar and the

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shell. If too much pressure is applied to the drill as it breaks through, it will jamb between the sidebar and the lock case snapping the bit. Wear safety glasses.

The goal is to drill the hole without damaging the sidebar or cylinder. If you drill too close to the plug, you will damage the sidebar spring or sidebar spring retainer. The lock can still be picked, but the cylinder will have to be repaired or replaced after it is opened. Insert the pointed end of the sidebar pick tool into the drilled hole. The bend in the pointed end should be pointed toward the outside of the cylinder, which would be to the left, as shown in the illustration.

This way the tip of the tool will slip between the sidebar and the lock case. Be careful not to catch the sidebar spring or spring retainer by inserting the tool with the point toward the sidebar. You may have to rake the front-most wafers of the lock to insert the pick tool. The tool should be inserted just far enough to bring the tip to the center of the sidebar (5/8"). Wrap a tiny piece of black tape on the pick tool, as you see in the illustration, to indicate the desired penetration of the pointed tip.

With the pick tool inserted into the sidebar compartment, rotate the "L" handle to bring tension from the bend in the tip, on the sidebar. Rake the wafers of the lock with a diamond pick, while applying pressure with the sidebar pick tool. You will be able to feel the sidebar depress by the tip of the pick tool, and the wafers will become "rigid" as they are captured by the sidebar.

Because no turning tension is used while picking the sidebar lock, the feel of the lock being "picked" is in the sidebar pick tool. When you feel that the lock is picked, rotate the plug with a small screwdriver. Maintain moderate to heavy turning tension on the plug as you pull the sidebar pick tool from the hole. The lock will only turn, after the pick tool has been completely removed.

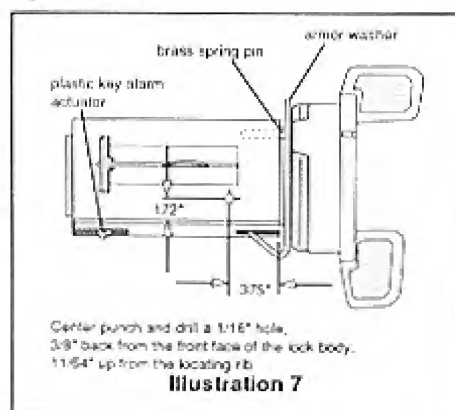
If you have opened the trunk to remove the lock and make a first key, you have only to remove, disassemble, and make the key. If the keys were in the trunk, remove the lock and replace the cap and shutter assembly. The lock will not have been destroyed. This is, by far, more professional than "drilling out" the cylinder and replacing it with another. The cost of the lock, and keying it up to the remaining locks of the car, only adds to the economy and

profitability of this method.

Picking "through the face" of an in-dash ignition follows the same procedure, as outlined above. The only differences are in that the cap is not removed from the plug, and the ignition is picked counterclockwise, toward the accessory position. Always "center punch" the location of the access hole, because the concave steel face of most in-dash ignitions will cause your drill to walk. Hole placement, as you can see, is critical to the success of this picking method.

You may want to use one of the commercially available drill jigs to locate your hole. I have never invested in one, and have successfully picked (if this is picking) many in dash cylinders. I would never drill one if I didn't have a spare replacement on hand. But with a jig, accidents may be less likely to happen that would require that the cylinder be replaced. Plug the hole in the face of the plug with a drive screw, solder, or liquid steel to complete the repair.

But, what do you do with the used cylinder? If you have followed the sidebar picking procedures so far, you will recognize the profitability in picking the GM ignition cylinder shown in illustration seven. Many GM autos manufactured from 1969 to 1978, and Chrysler autos with Saginaw tilt column, manufactured from 1972 to 1985, use this style ignition cylinder. Ignitions of this type use a spring catch style retainer.



To disassemble the ignition, it is necessary to rotate the plug to the accessory position. Some replacement ignitions are manufactured without codes stamped on the outside of the case. It is very common to remove an ignition cylinder to find no code from which to make a key. Replacing the ignition cylinder with a new one is a fast and profitable method of replacing a lost key. But, what do you do with the

used cylinders?

If you can disassemble and make keys for them, they can be turned into cash, as used replacements. Illustration seven shows the exact location for a 1/16" hole that will be centered over the sidebar. Remove the cam at the rear of the plug, without breaking the ring, and drill the hole, as indicated. Pick the ignition cylinder using the same procedure as you did with the "side drilled" trunk cylinder.

When you feel the sidebar depress, rotate the plug toward the accessory position. It will stop against the small brass spring pin, indicated in the illustration under the armor washer at the top of the shell. Depress the spring pin, while maintaining turning tension toward the accessory position (counterclockwise). The plug will rotate about 1/16 of a turn and be free to slide out the front of the shell. The plastic key alarm actuators, at the rear of the plug and also in the shell, may need to be positioned to allow the plug to be freely removed. Forcing the plug, will only break the plastic, so take it easy. Reassemble the plug after making the key or servicing the cylinder, and stake the cam to the rear of the plug.

Picking the GM sidebar lock is profitable, only if you take the time to practice and become familiar with the procedure. If you are part of the "slam hammer and battery drill" set, this article probably wasn't for you. If you recognize the principles outlined here as "professional" in nature, "I wish you Good Luck." These are methods I use with consistently "profitable" and highly "competitive" results. §

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Beginner's Corner

What does it take to be a success?



by Eugene Gentry

Featured in this article are interviews with three successful locksmith shops. The owners of each shop give some valuable advice to the new locksmith on what to expect in his new career. Each tells how he got started in locksmithing and how he was able to establish a successful business. The locksmith shops are located in the state of Arizona.

Pro-Lock & Safe is owned by Ed Williams. He has a full service store with displays of all types of locks, safes and door hardware. Ed and two employees, Frank Partello and John Hartlauer, operate three well stocked trucks. (See photograph 1.) He and employees alternate working on the road and in the shop. Following is an interview with Ed.



1. (Left to right) Frank Partello, Ed Williams, John Hartlauer of Pro-Lock & Safe Co.

The National Locksmith: "Can you tell us about your business?"

Ed: "We started the business about 3-1/2 years ago and have specialized in commercial work because of continuing repeat calls. We do full service locksmithing including residential work and sell and install safes. We find that the Yellow Page advertising costs are extremely high and find that what we were getting was price shoppers and people looking to pay the lowest price. What we have tried to develop is

working with companies that call us over and over. We do have a small ad in the Yellow Pages just to recognize that we are in business."

The National Locksmith: "How did you get started as a locksmith?"

Ed: "I got started about six years ago. I was in the construction business and due to the ups and downs, felt that I needed a career change. I felt that the locksmithing business was stable. I did not go to a school, but had worked with doors and locks in the construction business. The biggest problem I had was trying to learn locksmithing quickly, without any guidance. I finally did get hired as an apprentice in a locksmith shop in Yuma, Arizona, and when I moved to Phoenix, opened my own shop."

The National Locksmith: "What advice would you give the new locksmith?"

Ed: "The point is that there are two ways to go: enroll in a school or find someone that will take the time to teach you and in essence you will be paying your dues. You will be spending a lot of time training for little pay, but hands on experience is the best and quickest way to learn. When you get out there and start working 40 hours a week, you are going to learn fast. Again, I say the biggest problem is finding someone that will take that first step with you."

Now that I have my own business, I have tried to give different people opportunities to learn the locksmith business and have found that some can't even work with hand tools. One trait that a locksmith has to have is to be mechanically minded, because if he is not, it is not wise to try locksmithing.

The National Locksmith: "What is your business philosophy?"

Ed: "The basic secret is that they are your customers and they dictate to you how things should be run. The biggest problem we have is that the customer feels that he is right, but the mechanics of the lock show otherwise. They try to tell us what the problem is but when we get there we find that they are wrong

and we have to correct them. It's like any business—you try to work with the customer as much as you can. I suppose it's like all locksmiths with calls for something that has been broken for two months and they want it fixed right now."

I would advise the new locksmith to continue his education because locksmithing now is beyond fixing a simple doorknob. It is becoming specialized and will become more that way in the future. The automotive field itself will be a specialty.

The biggest hurdle is deciding that locksmithing is the career you want, then getting that first job."

Dan Howard is the president of A-Accurate Lock Service Inc. (See photograph 2.) This is an interview with Dan.



2. Dan Howard and Roger Benne, A-Accurate Lock Service Inc.

The National Locksmith: "Tell us a little about your business."

Dan: "I will give you a little history first because that has a lot to do with how a locksmith gets started. I was employed by the original owner of the store who came from California and started a small locksmith business here in Phoenix. When I came to work for the company as an apprentice it was a two man operation and it slowly grew from there."

The owner then wanted to sell out and retire, so Mike the top service man and I as manager, bought him out. We have grown slowly over the years and tried not to grow too fast because when

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people do that they fail, due to the fact they have taken on too much."

The National Locksmith: "How long have you been in business?"

Dan: "Since 1971, almost 20 years. Right now we have six full time employees with three service trucks. We generally keep two men in the shop, and three on the road. The extra man fills in for days off, vacations, and for big jobs like a rekeying job we had at a high school that had 900 locks and needed about 1500 keys. We do all types of lock work, but draw a line. We used to do alarm systems but as business grew, found we did not have time to concentrate on any one thing."

The National Locksmith: "Would you suggest to the new locksmith that he specialize in one thing?"

Dan: "No, I would recommend to a new locksmith, first of all, not to be afraid of anything. A good locksmith can pull almost anything apart, figure out what makes it work, and put it back together. For example, I got very active doing foreign car locks in the 70's because most of the locksmiths were afraid of them. There were no manuals and the manufacturers were not much help. I would take in the jobs, then take the locks apart, figure out how they worked, then rekey, repair or whatever was necessary. I learned this way, then passed on information to the employees. Now there are a lot of manuals that would help the new locksmith."

The National Locksmith: "What is your business philosophy?"

Dan: "First of all, one of our company mottos that we have always lived by is that we would rather make a lot of nickels than just a few dimes. So many locksmiths over-charge customers. The customer is offended, and the next time the customer needs a locksmith he won't go back to that person."

The locksmith that over-charges has the attitude to get the money now because the customer won't be back. That is the wrong philosophy because not only have we been here for almost 20 years, I have been dealing with some of the same customers for 15 to 18 years. If you take care of them the first time, they will call you again. You build a good relationship with your customers and they tell their friends. I get complaints here from customers who say they are treated rudely by other locksmiths, and that is not right because

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the customer is doing us a favor and should be treated with respect."

The National Locksmith: "Should a new locksmith serve an apprenticeship before he goes into business?"

Dan: "It is really wise because you can learn from other people's experience. You can learn more about the business world, how to deal with people and how to answer questions. This is important because the customer has to understand what you are telling them about their particular problem."

Jack Sands, owner of J&T Locksmith, president of P.A.L. Professional Associated Locksmiths of Arizona and member of the Grand Canyon Chapter of ALOA has some excellent advice for the new locksmith. (See photograph 3.) Continue with education, education and more education. Following is an interview with Jack.

The National Locksmith: "Are you a full service shop?"

Jack: "Yes, we do foreign and domestic autos, commercial, industrial, and residential work. We also do electronic work, alarms, and sell and service safes. I run three vans out of my shop and have four employees. We take care of emergencies seven days a week



3. Jack Sands of J&T Locksmith.

and are open six days a week. We feel like the more things a locksmith can do, open up more avenues of revenue."

The National Locksmith: "Do you think that full service is better than specializing in one thing?"

Jack: "I feel that a locksmith should be knowledgeable in all aspects. I am sure there are some things we would prefer to do over other things that may be easier or faster, but you are providing a service and dealing with security. If people want to upgrade their security, you have to have the knowledge to be able to handle it. You have to know the difference between products, how they work, and what security level your customer needs, before you can make an intelligent recommendation.

The National Locksmith: "How

many years have you been in the business?"

Jack: "I am a third generation locksmith and have had shops for a total of twenty odd years. My grandfather was a safeman, and my father was a locksmith and safeman. I got started in the business as a youngster sweeping the floors, stocking the shelves and cutting keys. I have had a lot of formal training by attending classes offered by manufacturers, ALOA and PAL.

My advice to the new locksmith is that it is going to take a couple of years of learning just to get started because there are so many different levels of security. Continuing education is important."

The National Locksmith: "Do you advise an apprenticeship for the new locksmith?"

Jack: "I certainly do recommend getting in as an apprentice in a shop, however it is a very difficult thing to get into. One who owns a shop is making an investment in this man, he is going to teach him. A new locksmith has to impress him and show that he is motivated, and wants to work and learn."

The National Locksmith: "Should he be mechanically minded?"

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Picking Greenwald Locks

"If you have not ever worked on these locks, then you are in for some 'fun.' But it's a lot easier if you can pick the lock instead of drilling."



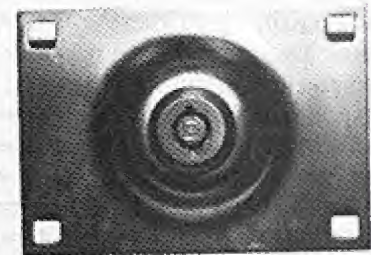
by Dale Libby

One of the most interesting and troublesome locking systems outside of working on safes and safe deposit locks, is that of working on vending machine locks, especially washing machine and dryer locks. If you have been fortunate enough to do this, then you know what I mean (hopefully). If you have not, then you have some "fun" to look forward to. I have recently come across a tool for

picking locks and a system for cutting Greenwald keys.

The Greenwald Company is a large supplier and user of 7 pin tubular cam locks. As a deterrent to drilling and picking of these locks, and of even duplicating the special key, the Greenwald company came up with an armored cone mechanism to fit over their cam locks. (See photograph 1.)

This cone accomplishes many things. It is hardened and the regular hardware store bits will have a lot of trouble drilling or cutting it. Because of the way this cover and door are engineered, a special key blank is needed to cut a key for this lock. The key must be inserted and raised in the special keyhole slot before it can enter

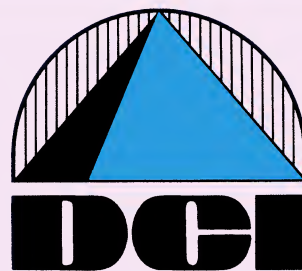


1. A lock under the Greenwald guard cone. The lock can be set up to turn either right or left to open.

and engage the cam lock. (See photograph 2.)

These are two major areas of consideration when servicing these units for a customer.

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2. Decoding a key with the depth key decoder.

1. If I open this lock and drawer, can I service it so that it can be repaired?

2. Can I duplicate keys for this lock once I have it opened and repaired?

Until recently, for me, the answers to the above questions was "No." Let me address the second question first. The standard key configuration is a "Left", "Center" or "Right" 7 pin "Ace" type key lock. If one had the blanks, one can duplicate it easily on any tubular key machine.

Custom Key Products of California makes keys that can be assembled to match the distinctive Greenwald key. (See photograph 3.) The heads are not flat like the original keys, but they perform very well and have great customer appeal. These keys must be duplicated with the heads unscrewed.



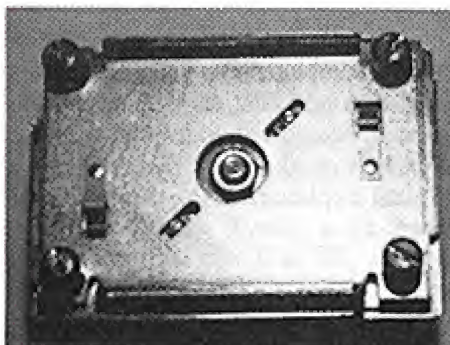
3. On the left, the factory Greenwald key; on the right, the Custom Security Products key.

Before picks for the Greenwald Ultra-Guard were invented, there was no easy way to service these units. Some of the easier units with the Ultra-Guard had the cone unit out in the open, while other units had the cone, faceplate, and drawer recessed in the top of the washer or dryer.

Since "Sears" stocked these units, complete with 2 new keys, the old way I serviced these units was to open the top of the guard plate and then drill the cam lock out, and then force the lock in the correct direction. (These units can open both clockwise and counterclockwise, depending on how the cam lock and the plates are installed by the serviceman.) Even talking about

these units brings on cold sweats at times.

I have tried several different ways to attack the "Cone of Protection" to get the locks. (See photograph 4.) These are hard nuts to crack. I have used a Dremmel tool, a surface grinder, and a large high speed drill to gain entrance, not to mention Vise-Grip pliers, a large screwdriver, a mini-torsion bar, and a tubular pick.



4. Back view of the Ultra-Guard door mechanism. Locks on four sides at corners.

A customer of mine asked me to open a washer and dryer in an apartment building for him. He had already purchased the replacement doors for the units, and just wanted a price for removing the doors on the machines. He thought my modest trip charge and opening fee was too much, so he attacked the machines himself, along with his helper.

Several drill bits, bruised hands, five hours, and many expletive words later, his wife called me to open the other machine. Her husband had been drilling the 4 corner hardened carriage bolts all afternoon, and just would not stop. (Safe-cracking Fever). I came, opened the keyhole, drilled the lock, and was gone in 15 minutes, with the new doors in place.

With the Ultra-Guard mini-pick by Customer Security Products, the job can be done in seconds. (See photograph 5.)



5. The "Mini Pick" for the Greenwald Ultra-Guard.

A key can be cut in just a few minutes, and the unit put back into service with no new parts being needed.

There are many methods for picking for 7 pin tubular locks. I have used the Lee pick for years. With the Lee lock picking instrument, after it is inserted, each pin is picked separately until the lock is opened. Once the lock is picked, the tool is turned 1/8 turn and the set screws are tightened. Average opening time is about a minute, and I have never had a lock that I could not open with this tool.

The next method of picking these locks is used with the Mini-Pick and other tubular lock picks, which are made by HPC also. This is the push and thrust and turn method. With this method, the tool is positioned in the lock after zero-ing out the pick. It is then pushed in, pulled out a little, turned first to the right, pushed in and out, then to the left, and so forth, until the tubular lock opens. (See photograph 6.)



6. Pick placed in lock and picked.

The average time to pick a lock this way, is about 15 seconds. It is very fast, almost magic. The standard 7 pin tubular lock is not high security from picking. Just the opposite. When I picked the lock in this article, it took 18 seconds the first time, and 10 seconds the second time.

This Mini-Pick, although designed for the Ultra-Guard cone will work on standard 137 "Ace" locks too. Included in the kit are extra fingers, illustrated and easy to follow instructions, special elastic grommets.

If you do a lot of work on this type of vending lock, then this pick and the key blanks are a must for you. Time and money will be saved, and opening will be a breeze, and not a hurricane. Open and Prosper!

The Lighter Side

The Locksmith Gremlins!



by Sara Probasco

"Have you seen my pick set?" Don asked, raking things around on the top of his workbench. "I had it here, just a minute ago, and now it's gone."

Lock-picking is not numbered among my areas of endeavor, and I seldom approach Don's workbench unbidden, except to shake my head and shudder, so the question seemed ridiculous. However, Don and I formed a pact, some time ago: he helps me remember things, and I help him find things. We make a good team.

Another concept we reconciled ourselves to, many years ago, is recognizing that supernatural forces are sometimes at work in our shop. What else could it be? Things frequently disappear right from under our noses and reappear in the strangest places, usually after we've given up hope of ever finding them. Besides, some days, no matter how diligently we try, nothing we do turns out right.

We have been known to blame the mythical "Harvey" (a six-foot-tall invisible rabbit of stage and movie fame) for the big things, but the small vexations of life, we usually attribute to gremlins.

Webster defines a gremlin as, "an imaginary small creature humorously blamed for (among other things)...the disruption of any procedure. 'Gremlins' may seem 'imaginary' to some people, but we know better, and, I assure you, there is absolutely nothing humorous about them."

Let me give you an example. One day, last week, Don was called to a local business to rekey the locks. He removed one of the deadbolts, changed the pinning appropriately, and reached to replace it in the door, a procedure that normally takes him only a few

minutes. More than an hour later, he finally completed the task. No matter what he tried to do, the tailpiece on the cylinder would not slide back into the deadbolt on the door. There was no logical explanation for the problem. Then, all at once, it was in, slick as a whistle, just as it was supposed to be, gremlins. Don did not laugh.

During the same job, he was removing face plate screws on Adams Rite locks and found that on two doors, three of the screws could not be removed. Now, every six months or so, he runs into a situation where such a screw will "freeze up" on him, necessitating drilling of the head, but three on two doors? Unheard of! Besides, he had put these in, himself, only a few months before, so he couldn't even blame some Herculean carpenter for screwing them in too tightly. He did not even smile.

Moving to another door, he found that the key wouldn't work in one mortise cylinder, although it had never presented a problem for the customer, before. He was forced to disassemble it otherwise. No humor here, either.

To top off the morning, in hand-changing the combination on the customer's fire safe, the alignment mark on the plastic combination wheels was virtually invisible, making proper alignment extremely difficult. Gremlins, again. I think Webster had better redefine the little monsters.

Various things disappearing from around the shop is probably the most frequent manifestation of gremlins' activity. They have a way of snatching something you have just put down, like your favorite pen or a customer's freshly duplicated key, and hiding it, sometimes for days. Then they leave it out in the open, where you have already looked a dozen times, for you to find.

Once, Don spent nearly a week searching for a certain car-opening tool, only to find that gremlins had carried it to an all-night coffee shop down the street, the site of a recent opening. The cashier found it right where the

gremlins had left it, lying in plain sight, on the check-out counter, of all places. Isn't it amazing how those little boogers get around?

You can usually predict when they are going to be giving you trouble. The day begins with some strange or unusually satisfying happening that lets down your guard. While you are marveling over that unusual set of events, zap! the gremlins take over, and the rest of the day is a total loss.

"Ha, ha! You little devil," Don laughed through clenched teeth as he picked up the key machine and shook it, looked under the cross-reference book, and scanned the bench with his eyes. "I know you're here, somewhere." He got down on his hands and knees. "Sara! Can you come help me a minute, ha, ha, ha!"

As I rounded the doorway into the customer area of our shop, I saw a look of horror pass over a lady's face. She watched Don's actions with mounting fear.

"Good morning, Mrs. Sweeney," I said cheerily. "Is Don taking care of you all right, this morning?"

"L...I'm not sure," she stuttered, still viewing him with alarm.

"Ha, ha!" he chortled from beneath the edge of the workbench. "You little gremlins, I'll get you yet."

"Don't pay any attention to him," I suggested to our customer. "He has decided to laugh away the gremlins around here."

"Gremlins?" she asked, still watching him incredulously.

"Yes. They have a way of making things disappear around here, sometimes. We've found that if we just laugh at them, they will often return whatever they've hidden from us."

Her wide eyes turned to me. "I see." She smiled nervously. "Well, never mind about that key. I'll come back some other time for it."

"Oh, no. He'll find it in a minute, I'm sure."

"Aha!" Don leaped to his feet, the

Continued on page 90

Opening A Diebold

"For those who are timid in their approach, a new learning experience can be traumatic. The successful safeman challenges the unknown."



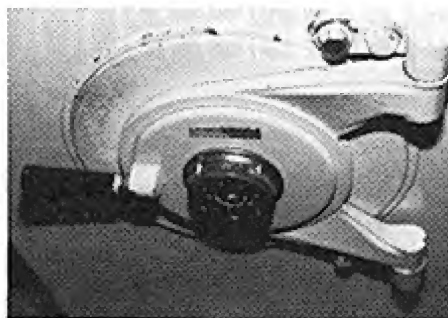
Send your car opening questions to: Shirl Schamp, The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107.

by Shirl Schamp

Have you ever strained your eyes, peering at an unknown sinister figure in the shadows of a darkened room? Staring at it from one angle then another. An arduous attempt to distinguish the object causes the imagination to run rampant. What is that? Did I see it move? Is it getting bigger? Finally, with strength mustered, your trembling hand nervously gropes for the light switch, and ah ha! Your coat isn't hanging in the closet, you draped it over the bed post. Without a warning, your friendly warm jacket had transformed into a monster lurking in the darkness.

Normal items, when removed from their common everyday existence, can become total strangers. This holds true in safe work. An unusual safe door design, or strange positioning of the dial and handle can become very perplexing. What does the boltwork look like? What is the handling of the lock? What lock is it? These questions are quickly answered with the opening of the door: on goes the light! Well, heck, that's just an S&G lock mounted right hand and a simple handle cam to retract the bolts.

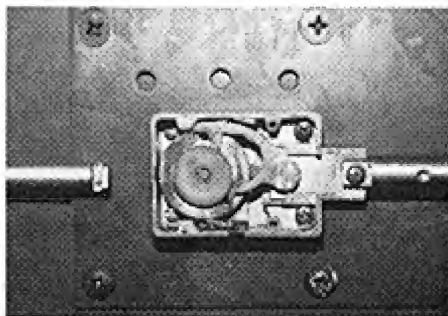
A safe dial for example, which requires additional operation to open the lock, can send a shudder of uncertainty to the brain. The Diebold dial assembly on the round door safe in photograph one is a little different design from the standard dial. It doesn't have the protruding knob in the center for a finger grip. Instead, the turning is by gripping the edges of the dial. The top reading feature is common, but the numbering ends with 100. The running of the three combination number and



1. Diebold's top reading dial assembly.

returning the dial to the drop area, does nothing. The dial just spins on by; the lock doesn't open. This lock is Diebold's 180 series lock.

If you look at photograph two, you'll notice the drive cam is a perfect circle. It appears not to have a gate, nothing for the lever nose to engage. In reality, only the inner half of the cam is notched with a gate. To open the lock, run the combination numbers. Return the dial to 100. Push the dial in, which moves the inner open portion of the drive cam gate under the nose of the lever. Turning the dial to the right engages the nose into the cam gate and retracts the lock bolt. Simple, once you have viewed it.

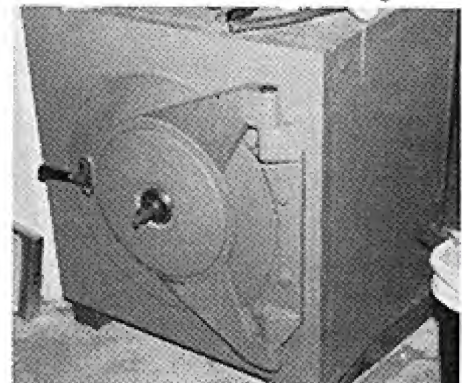


2. Diebold's 180 series combination lock. Note the drive cam, no gate?

For those timid in their approach to a new learning experience, the change in a function or design of a common item can evolve into a traumatic situation. The successful safe technician eagerly challenges the realm of the unknown, by seeking ways to turn on the "light." There may not be an absolute solution

to a problem, only a range of possible options.

The safe pictured in photograph three has an unusual dial design. Because of the radical comparison to a standard dial, two safemen declined to bid for the opening job. This is a Diebold lug door safe with an old style key locking dial. The dial is strange looking, with its long protruding snout. The appearance is different from the modern dial, but the function is the same: to lock the dial from turning.



3. Lug door safe with old style key locking dial.

If this safe had a modern dial, the opening would be a routine job. Remove the dial, drill for the fence and align the wheel gates. The use of this old style dial has not changed the opening procedure. The only question is, how to remove or reduce the diameter of the dial for drilling to the fence location.

I have to admit, this was my first encounter with this key locking dial. When I first viewed the safe, I had to giggle. It reminded me of the comedy written by Edmond Rostand, "Cyrano De Bergerac." A story of a charming, valiant soldier who believed his overly long nose would discourage Roxanne's love, the woman he admired. I affectionately refer to the safe as "Cyrano."

As a matter of background, Cyrano was used in a business. The safe lock

Continued on page 84



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was unlocked, but the combination was unknown. The employees locked the safe by turning the dial, and with the key, locked the dial at zero. To open the safe, the dial was unlocked, then turned right until it stopped. The dial was never rotated sufficiently to scramble the wheels from their opening position. This created the ever ready "day lock" situation. Eventually, the inevitable had to happen, the dial was spun. I love people who use a safe in this manner, because, someday they will need my service. God bless their frugal hearts!

There were a couple of methods in which this safe could have been opened. The first attempt, plan "A," should always be manipulation. If you practice this skill, it will only take a few minutes to determine the probability of success. You'll have an idea if it warrants spending time in manipulation, or moving on to plan "B."

Plan B involves drilling the door. If you have doubts about the brand, model or handing of the lock, the logical drill location should be through the dial ring. In the case of an antique safe, this drill location also would salvage the safe dial. A hole drilled through the dial ring, in the area between 12 and 16, is usually a safe spot. The drilling of the

door is angled slightly toward the center of the dial. With some calculations and a bit of luck, the hole will provide you with a direct view of the edge of the wheel pack.

The aligning and reading of the wheel gates is a simple task, but this information must be transferred to the drop area. If you don't have a firm grasp on the theory of transferring, the safe opening may lead to a long and frustrating day. You may opt for plan "C."

The simplest and the highest rate of success in opening a safe, is drilling for the fence location. The drilling is straight into the door, no angling. An accurate drilling will produce a view including the end of the fence and the edge of the first wheel. No special optics are required; a simple pen light will do. The wheel gates can be observed as they are aligned in the drop area, under the fence. You can see the lever physically drop and retract to the opening position. If a fly is broken and a wheel won't move, the wheel can be probed into position. If the lever is hung, reach in and pull it down. This drill location can solve numerous problems. But, to accomplish these tasks, the dial must be removed in some fashion.

Most dials consist of a casted material called Zamac. These dials can be readily pulled from their spindles. You can use commercial pullers, and an auto body "slam hammer" or pry it off with a screwdriver. Never attempt to pull a steel or brass dial. The spindle will either be threaded into, or pinned to the dial. The pulling action can cause damage to the lock itself, or the spindle may break below the safe door surface.

The dial and ring in photograph three is a nickel-plated, heavy cased brass. This is one of those dials you don't pull. To accomplish the drilling of the fence location, the dial must be reduced in diameter. The protrusion of the key locking cylinder extended beyond the dial ring by one and one half inches. A deep well, one and one half inch diameter hole saw was utilized to cut away the outside flange of the dial. The drill point was one inch out from the center of the dial, at the dial reading of 97. The results can be seen in photograph four.

Drilling to the fence is standard procedure with one exception. The configuration of the relock trigger in the Diebold lock covers a portion of the lever nose. A direct view of the fence is not possible until drill penetration is made through the relock trigger



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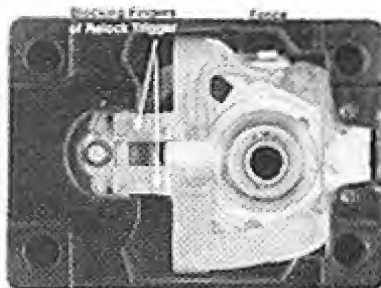
[Click here for more information](#)



4. The outer portion of the dial has been removed with a hole saw. Shown is the drilled hole for viewing the lever fence.

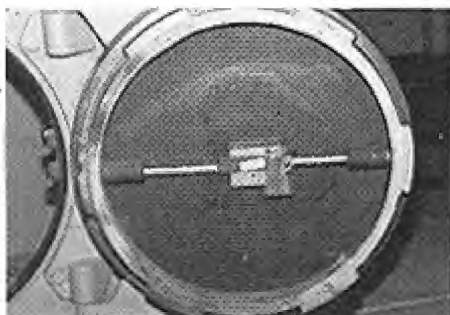
material.

Photograph five is an x-ray view of the Diebold lock case. The relock trigger is the bands of brass, which start at the center of the right edge of the case. They sweep out to the top and bottom edge of the case, then return near the center. The blocking two fingers, right angle to the rear of the lock bolt. In the photo, a portion of the band has been filed away to expose the lever fence. This area must be drilled away to see not only the end of the fence, but also the wheel gates.



5. X-ray view of the Diebold lock showing the relock trigger design and the exposed lever fence.

The inside of the door is seen in photograph six. This is a very simple locking device. The horizontal bar on



6. View of the inner door and parts

the right, as you are looking at the photo, is the locking bolt of the door. When the bolt is thrown to its locked position, it nests into a notch in the door frame and prevents the door from rotating to an open position. The horizontal bar to the left is a spring-loaded relocker. It is activated only if the back cover of the lock case is loosened or punched off. Its locking notch can be seen to the left, on the door frame.

Mounted onto the lock case cover is a flat bar. An L shaped hook is formed on the left end to secure the relocker bar. On the opposite end is mounted a narrow pie-shaped device. An arm, at the top of this device, reaches around the hooks the end of the square locking bolt protruding from the lock case. The device acts as a detent. It prevents the locking bolt of the door from being thrown after the door has been rotated to its open position. The device pivots as the door rotates, securing or releasing the movement of the lock bolt.

Normally, the original manufacturer's lock is used in the replacement of the combination lock. In Cyrano's case, the 180 series lock is no longer produced. Diebold does stock the group 2, 178 series. This is a three wheel lock, but isn't equipped with a relock trigger. The spindle of the original Diebold locks were one-quarter inch in diameter, compared to the industry's modern standard of five-sixteenth diameter.

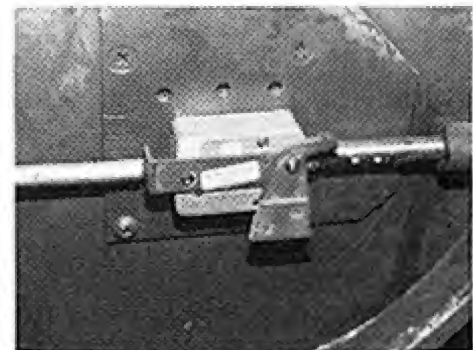
La Gard's 3300 series locks are presently used in most of Diebold's products. The hole through Cyrano's door has been drilled for the one-quarter inch spindle. This means, the hole must be drilled over size to accommodate the larger spindle, or a special order dial and spindle must be ordered from the factory.

To simplify the situation and use parts in stock, the Sargent & Greenleaf 6730 lock was selected as a replacement. A few modifications were required for the installation. The first task was to increase the spindle hole size through the door. There is no hard plate in this area, therefore, it was just a matter of running a larger drill bit through the hole.

The modern day lock cases have a common mounting bolt pattern; they will interchange. The S&G lock mounted perfectly to the original mounting door plate. A hole was drilled and tapped in the brass bolt of the lock for the attachment of the door's locking bolt. (The round horizontal bar.) Using

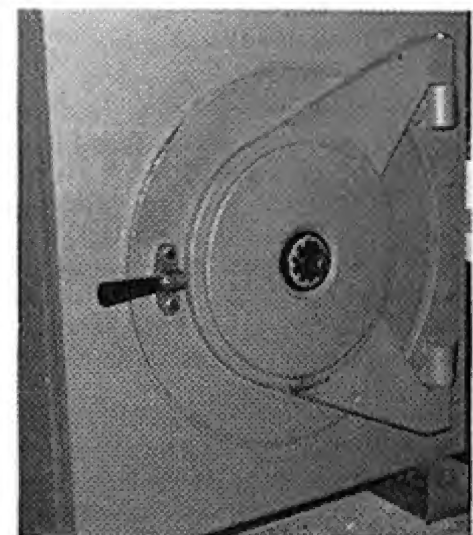
the old lock case cover as a template, the new cover was marked for the screw holes to secure the bracket for the relocker and detent device. The cover was drilled and tapped and the bracket installed. The filing down of the screw bodies insured their projection would not interfere with any working parts within the lock case. Two holes were drilled and tapped for the new dial ring. The lock was assembled and set to a new combination.

Photograph seven shows the new lock installation. The locking security of the door is equal to the original equipment. Nothing has been removed or modified to weaken or lessen the integrity of the door. The owner requested the key locking dial not be replaced.



7. The relocker and detent bracket mounted to the new S&G lock.

Photograph eight is Cyrano showing off his new nose job. He was last seen making eyes at a cute cash register. §



8. "Cyrano" with his new nose job.

Letters

Continued from page 8

from my original purpose of writing. What prompted this letter was Sara's article in March '91 issue. As you can see from my business card, I tried for a gimmick too 7 years ago when I moved to Chadron and opened my little shop. I went two steps further though. I bought a retired ambulance and it was my mobile lock shop. I then purchased give-away calendars with adhesive backs for walls and car dashes and the logo on the calendar top was an ambulance with my shop's name and number on it.

So, I guess sometimes you do "gotta have a gimmick."

Please keep on with Sara's article as it's the most enjoyable thing I ever get to read around these rural parts. I also enjoy the rest of the magazine.

Bob Tribble
Nebraska

Technitips

Continued from page 17

that may prevent the key from being extracted, as the key piece contacts them. Continue to rotate the extractor, as you lift each wafer, to raise and extract the tip of the key out of the keyway. The spiral extractors are especially handy on Chrysler and Honda ignitions. On the Honda ignition, use two extractors. One on each side of the key piece. The extractors will hold the key alarm switch back, allowing the piece to be easily extracted.

Larry Kanzer
Pennsylvania

In the past, when asked to install or rekey a double cylinder deadbolt in a residential application, I would put on my "Safety First" hat, step up on my OSHA approved orange podium, and launch into a sermon on the life safety aspects of the double cylinder deadbolt. Recently, I have begun a new program to safeguard my customers. The subject of this Technitip is safety.

When installing a double cylinder deadbolt, I install a master wafer in one of the cells of the inside cylinder. This allows me to issue a key that will only operate the inside cylinder. This "SAFETY" key is cut on a neuter bow blank, so the customer will not confuse

it with the key that operates both sides of the lock. The "safety" key, because it only operates the inside cylinder, will never be "borrowed," to leave the house. It does not operate the outside cylinder. When leaving the house, they can remove the key from the lock, to restore the "double cylinder" security for entry way which have glass in or around the door.

I hope you find this Tip useful

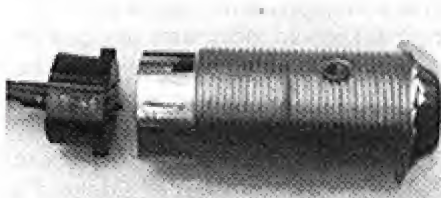
H.M. Hogue
Texas

Fort Lock

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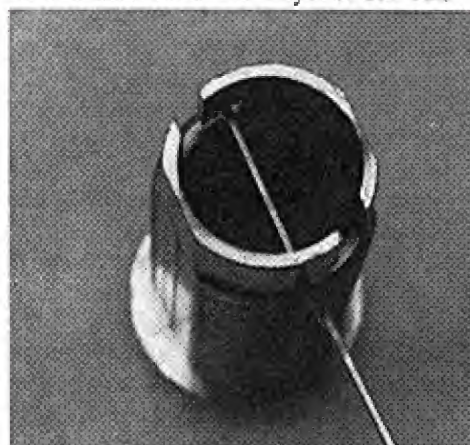
and the actuator into the lock housing with the hook end of the spring to the left of the stop pin. (If converting to momentary function the hook would go to the right of the stop pin.)

Now, with your pinky (if it is small enough) or with the eraser end of a pencil, push on the actuator while turning counter-clockwise until the actuator slips onto the spindle of the plug. Line up the switch button with the arrow on the side of the housing (see photograph 9), push in on the switch and turn clockwise to engage the bayonet slots.



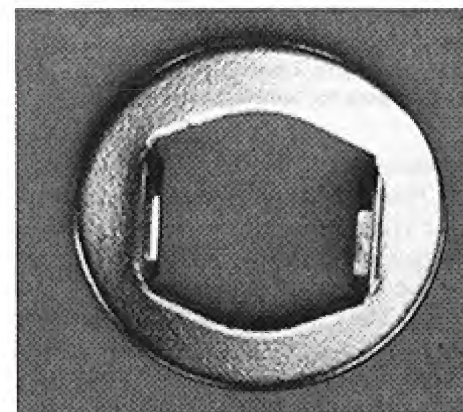
9. Pushbutton and arrow lined up properly.

If we were converting to Momentary contact, the "hook" of the actuator spring would be placed to the right of the cam stop pin and heavy spring tension would be felt when fitting the actuator to the plug spindle. A thin wire tool is inserted in the bayonet cut outs



10. This thin wire holds the actuator in place.

to hold the actuator in place and is withdrawn as the switch is being installed. (See photograph 10.) The switch of the Multi-Function is UL listed and is single pole, double throw, 7 amp, 28 VDC, 250 VAC. The three 10 inch leads, (red, white, black) enable the user to utilize the switch for two wire or three wire connections as required. The Fort "Wonder Washer" (see photograph 11), provides solid mounting of the switch in either wood or metal 3/4 inch openings without flat sides.



11. The Fort "Wonder Washer."

Order a couple of these guys from your distributor, take a few minute to examine and understand the versatility of the design and I think that you will like what you find.

For more information contact: Fort Lock Corp., 3000 N. River Rd., River Grove, IL 60171, (708) 456-1100. §

Ford

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next to it cannot be shallower than a #3, so we would not need to cut the 1-1, 1-2, 2-3, 2-4, 2-1, or 2-2.

Once we have our marks, we simply take those two depths deeper until one stops marking, and then the one until we have a working key.

Impressioning these locks in the fashion described herein takes a little practice to get used to, but once you have it you will find that in many ways they are easier to deal with than standard locks.

I am a big believer in using a code machine for impressioning to get a smooth, reliable surface of the exact depth I want, and I find it saves time and effort. And time, as we all know, is money, and effort, as we all know is exhausting §.

Schools

Continued from page 56

Pine Technical College

Pine Tech is part of the Minnesota state higher education system; over 3,000 graduates have completed vocational training at Pine Tech since its 1965 opening.

The first locksmithing classes began in the fall of 1987. Enrollment has increased steadily, and the college now has two certified master locksmiths as instructors.

The locksmithing course includes general and business education in addition to technical locksmithing. Theory, application, and practice are also blended to provide understanding of why locks function in a certain way and building confidence about how to deal with lock challenges.

Students start at the fundamental level with lock and key identification, tools use, lock cylinder theory, industry standard technology, and continue with lock pinning, fitting keys to various lock types, hand and machine key duplication, and disassembly-reassembly.

Students also study related subjects such as basic electricity, blueprint reading, welding and introduction to security. General education classes are also included with written and oral communication, introduction to computers, and job keeping skills.

At the intermediate level, students study lockset installation, picking, impressioning and car lock servicing. Related classes include small business management, bookkeeping, marketing and business law.

Advanced courses consist of master-keying, electronic locking systems, high security locks, and system design. The maintenance, opening and repairing safes and six weeks of internships with locksmiths, wholesalers, or contract hardware suppliers are also included.

96 credits (or about 1800 classroom hours) make up the program, translating to six quarters or two nine month school years for students attending the school full time. Each school year begins in September and concludes at the end of May, and new enrollments are accepted in September, November and March when quarters begin.

Financial aid is available, including veteran's benefits, guaranteed student loans, federal grants and scholarships. Employers have also funded students. Others have received assistance from

worker's compensation retraining programs.

Circle 301 on Rapid Reply

Beginner's Corner

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Jack: "Definitely. The new man has to become a problem solver. People come to you with a problem and very seldom do you see people at their best when you are called out. They are either locked out, lost their keys or have been burglarized and you have to solve the problem by helping them. When you are a locksmith you are not just a 'key cutter.' Do you know the difference? When people go to the hardware store to have a duplicate key made and it doesn't work, they then go to the locksmith to have it straightened out."

The National Locksmith: "Do you recommend that new locksmiths join some of the associations?"

Jack: "Yes, I recommend that he get into both the local and national associations because of the excellent education programs that are available to the members. Generally after each meeting there is an educational program, and many classes are available. This is where you are going to get your education and you mix that with practical training. You are also able to stay current with what is happening in the industry."

The National Locksmith: "What is your business philosophy?"

Jack: "You must be honest and have integrity. You are dealing with people's security and you always have to keep that in mind. You are in a position of trust whether you are changing the locks on a home or a commercial building. They are equally important. You have to be professional in your work. The policy that we have here is to treat a customer as a customer. We say thank you for your business and our workmanship and service has to be the best. §

The Lighter Side

Continued from page 80

key gripped tightly in his hand. "And a ha, ha, ha! to you," he shouted to the floor. Smirking, he walked to the cash register and began to make out Mrs. Sweeney's ticket. "Here's your key and the duplicate," He proudly stated. "I've finally learned how to get the best of them," he added.

"Them?" she asked, nervously handing him the money and picking up her keys.

"The gremlins. The only way to get the upper hand is to laugh at them, no matter what they do to you," Don said.

She looked to me for help.

"You see," I explained, "One day, we were so exasperated, trying to find things around here, that we broke into hysterical laughter. Suddenly, what we were looking for turned up. We've been doing it, ever since. It seems to get the best of the little varmints."

"Yes, I see. Well, I must be going now." Mrs. Sweeney hurried out the door, glancing nervously over her shoulder as she left.

I don't know if Webster's reference to gremlins being "humorously blamed for the disruption of any procedure" means that he thought we should laugh them away, but it works for us. Besides, it sometimes keeps us from crying, and it nearly always makes people wonder what we're up to. §



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